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# NATIONAL AERONAUTICS AND SPACE ADMINISTRATION



(NASA-CR-144611) AERHEATING (PRESSURE)  
CHARACTERISTICS ON A 0.010-SCALE VERSION OF  
THE VEHICLE 3 SPACE SHUTTLE CONFIGURATION  
(26-OTS) IN THE LANGLEY RESEARCH CENTER  
4-FOOT WIND TUNNEL (IE4) (Chrysler Corp.)

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SPACE SHUTTLE

AEROTHERMODYNAMIC DATA REPORT



JOHNSON SPACE CENTER

HOUSTON, TEXAS

DATA MANAGEMENT services

SPACE DIVISION



CHRYSLER  
CORPORATION



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VOLUME 4 OF 4

AEROHEATING (PRESSURE) CHARACTERISTICS ON A  
0.010-SCALE VERSION OF THE VEHICLE 3 SPACE SHUTTLE  
CONFIGURATION (26-OTS) IN THE LANGLEY RESEARCH CENTER  
4-FOOT WIND TUNNEL (IH4)

by

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Rockwell International Space Division

Prepared under NASA Contract Number NAS9-13247

by

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New Orleans, La. 70189

for

Engineering Analysis Division  
Johnson Space Center  
National Aeronautics and Space Administration  
Houston, Texas

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NASA Series Number: IH4  
Model Number: 26-OTS  
Test Dates: November 12 through November 16, 1973  
Occupancy Hours: 32

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AEROHEATING (PRESSURE) CHARACTERISTICS ON A  
0.010-SCALE VERSION OF THE VEHICLE 3 SPACE SHUTTLE  
CONFIGURATION (26-OTS) IN THE LANGLEY RESEARCH CENTER  
4-FOOT WIND TUNNEL (IH4)

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R. B. Kingsland  
Rockwell International Space Division

ABSTRACT

This report presents the results of wind tunnel tests, IH4, conducted at the Langley Research Center Unitary Plan Wind Tunnel. The model tested was an 0.010-scale version of the Vehicle 3 Space Shuttle Configuration. Pressure measurements were made on the launch configuration, Orbiter alone, external tank alone, and solid rocket booster alone, to provide heat transfer pressure data.

The tests were conducted for a Mach number range from 2.36 to 4.6 and Reynolds number range from  $1.2$  to  $5 \times 10^6$  per foot. The model was tested at angles of attack from  $-10^\circ$  to  $20^\circ$  for a sideslip angle range from  $-5^\circ$  to  $+5^\circ$ , and at sideslip angles from  $-5^\circ$  to  $48^\circ$  for  $0^\circ$  angle of attack.

This report for IH4 consists of four volumes:

Volume 1 - data figures 4 through 47

Volume 2 - data figures 48 through 92

Volume 3 - tabulated source data, pages 1-401 (R data sets)

Volume 4 - tabulated source data, pages 402-926 (M and A data sets).

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## SCHEDULE OF PLOTTED COEFFICIENTS:

- A)  $C_p/C_{p_{stag}}$  versus  $X/L_b$ ;  $C_p/C_{p_{stag}}$  versus  $\phi$
- B)  $C_p/C_{p_{stag}}$  versus  $X/C_W$
- C)  $C_p/C_{p_{stag}}$  versus  $X/C_V$
- D)  $C_p/C_{p_{stag}}$  versus  $X/L_T$ ;  $C_p/C_{p_{stag}}$  versus  $\theta$
- E)  $C_p/C_{p_{stag}}$  versus  $X/L_{SRB}$ ;  $C_p/C_{p_{stag}}$  versus  $\psi$
- F)  $P_i/P_u$  versus  $X/L_b$ ;  $P_i/P_u$  versus  $\phi$
- G)  $P_i/P_u$  versus  $X/C_W$
- H)  $P_i/P_u$  versus  $X/C_V$
- I)  $P_i/P_u$  versus  $X/L_T$ ;  $P_i/P_u$  versus  $\theta$
- J)  $P_i/P_u$  versus  $X/L_{SRB}$ ;  $P_i/P_u$  versus  $\psi$

## NOMENCLATURE

<u>PLOT SYMBOL</u>	<u>MNEMONIC</u>	<u>DEFINITION</u>
a		speed of sound, ft/sec
$A_b$		base area, ft <sup>2</sup>
b	BREF	wing span or reference span, in
c.g.		center of gravity
$l_{ref}$ $\bar{c}$	LREF	reference length or wing mean aerodynamic chord, in
c	C	local wing chord, in
$C_p$	CP	local pressure coefficient; $(P_n - P_\infty)/q$
$C_{pstag}$	CPSTG	stagnation pressure coefficient
$C_p/C_{pstag}$	CP/CPS	ratio of local static pressure coefficient to stagnation pressure coefficient
	CONFIG	configuration
	F.S.	fuselage station, in
	I.V.	integrated vehicle
L	L	actual length of component, in
MACH	MACH	Mach number, $V/a$
	M.S.	missile station, in
$P_\ell$	PL	local static pressure; $1/2\rho v^2$ , psi
	POINT	data point number
$P_\infty$	PINF	freestream static pressure, psi
$P_i/P_u$	PI/PU	interference to undisturbed pressure ratio
$P_\ell/P_\infty$	PR	ratio of local static pressure to freestream static pressure

# NOMENCLATURE (Continued)

<u>PLOT SYMBOL</u>	<u>MNEMONIC</u>	<u>DEFINITION</u>
	PORT	Scanivalve port number
	RUN	run number
RN/L	RN/L	unit Reynolds number, per ft
	S-V VALVE	Scanivalve number
q	Q(Psi)	dynamic pressure; $1/2\rho v^2$ , psi
	SREF	wing area or reference area, ft <sup>2</sup>
	MRP	moment reference point
	XMRP	moment reference point on X axis, in
	YMRP	moment reference point on Y axis, in
	ZMRP	moment reference point on Z axis, in
T	T	temperature, °F
V	V	velocity, ft/sec
X/L <sub>b</sub>	X/LB	distance from nose of orbiter divided by orbiter length
X/L <sub>T</sub>	X/LT	distance from external tank nose divided by external tank length
X/L <sub>SRB</sub>	X/LSRB	distance from SRB nose divided by SRB length
X/C <sub>w</sub>	X/CW	distance from wing leading edge divided by wing chord length
X/C <sub>v</sub>	X/CV	distance from vertical tail leading edge divided by vertical tail chord length
X	X	longitudinal distance from nose of component, in



# NOMENCLATURE (Continued)

<u>PLOT SYMBOL</u>	<u>MNEMONIC</u>	<u>DEFINITION</u>
Y	Y	lateral distance from center-line of component, in
Y/b/2	2Y/BW	distance from fuselage center-line outboard divided by semi-span length
Z	Z	vertical distance from reference plane of component, in
Z/bv	Z/BV	distance from orbiter station $Z_0 = 500$ divided by vertical tail span
$\alpha$	ALPHA	angle of attack, deg
$\beta$	BETA	angle of sideslip, deg
$\psi$	PSI	SRB ray angle measured clockwise, looking forward, from bottom center-line, deg
$\phi$	PHI	orbiter ray angle measured clockwise, looking forward, from bottom center-line, deg
$\theta$	THETA	external tank ray angle measured clockwise, looking forward, from bottom center-line, deg
$\rho$	RHO	mass density, slugs/ft <sup>3</sup>
$\mu$	MU	freestream viscosity, lb-sec/ft <sup>4</sup>

## SUBSCRIPTS

	o	SSV reference system
	1	conditions upstream of a shock wave
	2	conditions downstream of a shock wave
b	B	body
	FS	fuselage station, in

## NOMENCLATURE (Concluded)

### SUBSCRIPTS (Continued)

<u>PLOT SYMBOL</u>	<u>MNEMONIC</u>	<u>DEFINITION</u>
	FULL	full scale
i	I	interference-integrated vehicle data
	LE	leading edge
l	L	local
	MS	missile station, in
n	ORI NO	orifice number, n = integer
O	O	Orbiter
S SRB	SRB	Solid Rocket Booster
s		static conditions
stag	S	stagnation conditions
T	T	external tank
t		total conditions
u	U	undisturbed-component alone data
v	V	vertical tail
W	W	wing
$\infty$		freestream

## CONFIGURATIONS INVESTIGATED

(1)  $O_1 + T_{15} + S_8 N_{16}$  - Integrated Vehicle

$O_1$  = Orbiter -  $B_{17}$   $C_7$   $M_4$   $F_5$   $W_{103}$   $E_{22}$   $V_7$   $R_5$

$B_{17}$  - Fuselage

$C_7$  - Canopy

$M_4$  - OMS Pods

$F_5$  - Body Flap

$W_{103}$  - Wing

$E_{22}$  - Elevon

$V_7$  - Vertical Tail

$R_5$  - Rudder

$T_{15}$  = External Tank with protuberances

$S_8$  = Solid Rocket Booster

$N_{16}$  = BSRM nozzles

(2)  $O_1 + T_{22} + S_8 N_{16}$  - Integrated Vehicle

$T_{22}$  = External Tank without protuberances

(3)  $O_1$  - Orbiter

(4)  $T_{15}$  - External Tank Alone

(5)  $S_8 N_{16}$  - Solid Rocket Booster Alone

## TEST FACILITY DESCRIPTION

The NASA LaRC 4 foot Unitary Plan Wind Tunnel (UPWT) is a closed-circuit, continuous flow, variable density facility. The test section is 4 feet by 4 feet by 7 feet long.

Two tunnel legs are available for supersonic testing in the Mach number ranges 1.47 to 2.86 (Leg No. 1) and 2.29 to 4.63 (Leg No. 2). All of these tests were made in Leg No. 2. An asymmetric, sliding block nozzle position and total pressure setting provide the test Mach numbers at a specified Reynolds number. Reynolds number can be varied from 0.76 to 7.78 million per foot. Available stagnation pressure variation is 4.0 to 142. psia. Dynamic pressure variation is 95. to 1260. psf with normal operating stagnation temperature about 150°F in Mach modes 2 or 3 and about 175°F in Mach mode 4. The tunnel is equipped with a dry air supply, an evacuating system, and a cooling system. The facility power is approximately 83,000 horsepower.

Model mounting provisions consist of various sting arrangements, including axial (longitudinal), lateral (independent pitch and yaw), and roll movement with side wall support. A Schlieren system and oil flow visualization equipment are available. Data are recorded at the tunnel and reduced off-line at the Langley Computer Center. The tunnel is used for force and moment, pressure, and dynamic stability tests. Hot and cold jet effects and heat transfer have been studied in the UPWT.

## TESTING AND PROCEDURE

Before model installation, each of the 341 model orifices were checked for leaks and continuity. The location of each of the orifices on the model is presented in Table 4. It was found during this check that orifices 43, 738, and 766 were open and that orifices 121, 532, 553, 558, 590, and 715 were plugged. Of these, only orifice 43 was recorded during the tests.

During model installation, the good orifices were connected to twelve Scanivalves as indicated in Tables 5 and 6. A system leak and continuity check was made at this time and all orifices were reading good except 701 which was plugged after data point 104. No further checks were made because none of these connections were broken during the test.

A vacuum was connected to port 0 and a 1 psi reference pressure to ports 1 and 2 of each Scanivalve. Additional reference pressures of 5 psi were connected to the first two ports that were open after all model pressures were recorded on each Scanivalve. On the Scanivalves that used 10 psi transducers, the next two ports had a 10 psi reference pressure connection. The vacuum was used as a zero point in data reduction and the reference pressures were used as a check on the transducer calibrations during running, and, if necessary, to adjust the pretest calibration of the transducers. To increase the accuracy of the data, the transducers used in each of the twelve Scanivalves were arranged by pressure range depending on which configuration was being tested and on estimated pressure measurement levels. The actual transducer range used in each Scanivalve is presented in Table 7. After each transducer change, a check was made to ensure that there were no leaks.

## DATA REDUCTION

Standard Langley Research Center methods were used to obtain local static pressures in psi,  $P_n$ .

The local static pressure coefficient for each orifice was calculated by:

$$C_{p_n} = (P_n - P_1)/q_1$$

The ratios of local static pressure to freestream static pressure upstream of the shock wave were calculated by:

$$PR_1 = P_n/P_1$$

The ratios of local static pressure to total pressure downstream of the shock wave were calculated by:

$$PR_2 = P_n/P_{t2}$$

The stagnation pressure coefficients were calculated by:

$$C_{p_{stag}} = (P_{t2} - P_1)/q_1$$

The ratios of local static pressure coefficient to stagnation pressure coefficient were calculated by:

$$C_{p_n}/C_{p_{stag}} = (P_n - P_1)/(P_{t2} - P_1)$$

If the data was from a component alone run, this equation provided the ratio of local static pressure coefficient undisturbed to stagnation pressure coefficient,  $C_{p_u}/C_{p_{stag}}$ . However, if the data was from an integrated component run, this equation provided the ratio of local static pressure coefficient interference to stagnation pressure coefficient,  $C_{p_i}/C_{p_{stag}}$ .

## DATA REDUCTION (Concluded)

The ratios of local static pressure interference to local static pressure undisturbed were calculated by:

$$P_i/P_u = (P_{ni} - P_l)/(P_{nu} - P_l)$$

TABLE I.

TEST : IH4		DATE : 11/12/73	
TEST CONDITIONS			
MACH NUMBER	REYNOLDS NUMBER (per ft x 10 <sup>6</sup> )	DYNAMIC PRESSURE (pounds/sq. inch)	STAGNATION TEMPERATURE (degrees Fahrenheit)
2.36	1.2	1.87	150
2.36	3.0	4.67	150
2.95	1.2	1.62	150
2.95	3.0	4.04	150
2.95	5.0	6.73	150
3.7	1.2	1.26	150
3.7	3.0	3.15	150
3.7	5.0	5.26	150
4.6	1.2	0.98	175
4.6	3.0	2.45	175
4.6	5.0	4.09	175

BALANCE UTILIZED: NONE

	CAPACITY:	ACCURACY:	COEFFICIENT TOLERANCE:
NF	_____	_____	_____
SF	_____	_____	_____
AF	_____	_____	_____
PM	_____	_____	_____
RM	_____	_____	_____
YM	_____	_____	_____

COMMENTS: Pressure Transducers accuracy  $\pm 1\frac{1}{2}\%$  of rated load.



TABLE II.

TEST: IH-4 (UPWT 1059)

# DATA SET/POST NUMBER COLLATION SUMMARY

DATE: 3/31/76 (REVISED)

[illegible]

NOTE: RG3xxx =	MACH	ALPHA BETA	CP/CPS	AG3xxx =	MACH	ALPHA	PI/PU
MG3xxx =	MACH	ALPHA BETA	PL	AG3xxx DATA SETS ARE RATIOED MG3xxx DATA SETS			
	IDVAR(1)	IDVAR(2)	DV	DESCRIBED ON PAGE 26			

TYPE OF DATA  
 $\alpha$  OR  $\beta$   
 SCHEDULES

B=ORBITER FUSELAGE  
U=UPPER WING

L = LOWER WING  
V = VERTICAL TAIL  
T = EXTERNAL TANK  
S = SOLID ROCKET BOOSTER

## COEFFICIENT SCHEDULES

IDVAR (1)	IDVAR (2)	NDV
1	1	1
2	2	1
3	3	1
4	4	1
5	5	1
6	6	1
7	7	1
8	8	1
9	9	1
10	10	1
11	11	1
12	12	1
13	13	1
14	14	1
15	15	1
16	16	1
17	17	1
18	18	1
19	19	1
20	20	1
21	21	1
22	22	1
23	23	1
24	24	1
25	25	1
26	26	1
27	27	1
28	28	1
29	29	1
30	30	1
31	31	1
32	32	1
33	33	1
34	34	1
35	35	1
36	36	1
37	37	1
38	38	1
39	39	1
40	40	1
41	41	1
42	42	1
43	43	1
44	44	1
45	45	1
46	46	1
47	47	1
48	48	1
49	49	1
50	50	1
51	51	1
52	52	1
53	53	1
54	54	1
55	55	1
56	56	1
57	57	1
58	58	1
59	59	1
60	60	1
61	61	1
62	62	1
63	63	1
64	64	1
65	65	1
66	66	1
67	67	1
68	68	1
69	69	1
70	70	1
71	71	1
72	72	1
73	73	1
74	74	1
75	75	1
76	76	1
77	77	1
78	78	1
79	79	1
80	80	1
81	81	1
82	82	1
83	83	1
84	84	1
85	85	1
86	86	1
87	87	1
88	88	1
89	89	1
90	90	1
91	91	1
92	92	1
93	93	1
94	94	1
95	95	1
96	96	1
97	97	1
98	98	1
99	99	1
100	100	1

TABLE II. (Continued).

TEST: IH-4 (UPWT 1059)				DATA SET/POINT NUMBER COLLATION SUMMARY					DATE: 3/31/76 (REVISED)										
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES				NO. OF PTS	MACH NUMBERS ( OR ALTERNATE INDEPENDENT VARIABLE )										
		$\alpha$	$\beta$	RN/L					2.36	2.95	3.7	4.6							
RQ3XBB	$\phi_1 + T_{22} + S_8 N_{16}$	-10	0	3.0				2				33	37						
	(INTEGRATED	-5	0	3.0				2				34	38						
	VEHICLE WITHOUT	0	0	3.0				2				35	39						
	PROTUBERANCES)	+5	0	3.0				2				36	40						
RQ3YCA	$\phi_1$	-5	0	1.2				2				65	100						
	(ORBITER	0	0	1.2				4	44	61		66	101						
	ALONE)	5	0	1.2				4	45	62		67	102						
		10	0	1.2				4	46	63		68	103						
		20	0	1.2				4	47	64		69	104						
RQ3YCB		-10	0	3.0				2				70	85						
		-5	0	3.0				2				71	86						
		0	0	3.0				4	48	57		72	87						
		5	0	3.0				4	49	58		73	88						
		10	0	3.0				4	51	59		74	89						
		20	0	3.0				4	52	60		75	90						

B = ORBITER FUSELAGE  
U = UPPER WING  
L = LOWER WING  
V = VERTICAL TAIL

## COEFFICIENT SCHEDULES

IDVAR (1)	IDVAR (2)	NDV
1	1	1
1	2	1
1	3	1
1	4	1
1	5	1
1	6	1
1	7	1
1	8	1
1	9	1
1	10	1
1	11	1
1	12	1
1	13	1
1	14	1
1	15	1
1	16	1
1	17	1
1	18	1
1	19	1
1	20	1
1	21	1
1	22	1
1	23	1
1	24	1
1	25	1
1	26	1
1	27	1
1	28	1
1	29	1
1	30	1
1	31	1
1	32	1
1	33	1
1	34	1
1	35	1
1	36	1
1	37	1
1	38	1
1	39	1
1	40	1
1	41	1
1	42	1
1	43	1
1	44	1
1	45	1
1	46	1
1	47	1
1	48	1
1	49	1
1	50	1
1	51	1
1	52	1
1	53	1
1	54	1
1	55	1
1	56	1
1	57	1
1	58	1
1	59	1
1	60	1
1	61	1
1	62	1
1	63	1
1	64	1
1	65	1
1	66	1
1	67	1
1	68	1
1	69	1
1	70	1
1	71	1
1	72	1
1	73	1
1	74	1
1	75	1
1	76	1
1	77	1
1	78	1
1	79	1
1	80	1
1	81	1
1	82	1
1	83	1
1	84	1
1	85	1
1	86	1
1	87	1
1	88	1
1	89	1
1	90	1
1	91	1
1	92	1
1	93	1
1	94	1
1	95	1
1	96	1
1	97	1
1	98	1
1	99	1
1	100	1
1	101	1
1	102	1
1	103	1
1	104	1
1	105	1
1	106	1
1	107	1
1	108	1
1	109	1
1	110	1
1	111	1
1	112	1
1	113	1
1	114	1
1	115	1
1	116	1
1	117	1
1	118	1
1	119	1
1	120	1
1	121	1
1	122	1
1	123	1
1	124	1
1	125	1
1	126	1
1	127	1
1	128	1
1	129	1
1	130	1
1	131	1
1	132	1
1	133	1
1	134	1
1	135	1
1	136	1
1	137	1
1	138	1
1	139	

TABLE II. (Continued).

TEST: IH-4 (UPWT 1059)				DATA SET/POINT NUMBER COLLATION SUMMARY										DATE: 3/31/76 (REVISED)									
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES				NO. OF PTS	MACH NUMBERS ( OR ALTERNATE INDEPENDENT VARIABLE )														
		$\alpha$	$\beta$	RN/L					2.36	2.95	3.7	4.6											
RQ3YCC	$\phi 1$	-5	0	5.0				2			80	95											
		0	0	5.0				3		53	81	96											
		5	0	5.0				3		54	82	97											
		10	0	5.0				3		55	83	98											
		20	0	5.0				3		56	84	99											
RQ3YCD		-5	-5	3.0				2			76	91											
		0	-5	3.0				2			77	92											
RQ3YCE	Y	-5	5	3.0				2			78	93											
		0	5	3.0				2			79	94											
RQ3TDA	$T_{15}$	-5	0	1.2				2			119	133											
		(EXTERNAL	0	0	1.2				2			120	134										
RQ3TDB	TANK ALONE)	-10	0	3.0				2			121	127											
		-5	0	3.0				2			122	128											
		0	0	3.0				2			123	129											
		5	0	3.0				2			124	130											
RQ3TDC	Y	-5	0	5.0				2			125	131											
		0	0	5.0				2			126	132											
TYPE OF DATA		COEFFICIENT SCHEDULES							IDVAR (1)		IDVAR (2)		NDV										
$\alpha$ OR $\beta$																							
SCHEDULES																							

TEST RUN NUMBERS

TEST: IH-4 (UPWT 1059)				DATA SET POINT NUMBER COLLATION SUMMARY					DATE: 3/31/76 (REVISED)									
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES				NO. OF PTS	MACH NUMBERS ( OR ALTERNATE INDEPENDENT VARIABLE )									
		$\alpha$	$\beta$	RN/L					2.36	2.95	3.7	4.6						
RG3SEA	(*) $S_8 N_{16}$	0	-5	1.2				1			141							
	(SRB	0	0	1.2				2			142	168						
	ALONE)	0	5	1.2				2			143	169						
RG3SEB	↓	0	-5	3.0				2			144	156						
		0	0	3.0				2			145	157						
		0	5	3.0				2			146	158						
		0	10	3.0				2			147	159						
RG3SEC		0	0	5.0				2			154	166						
		0	5	5.0				2			155	167						
RG3SEF	(**) $S_8 N_{16}$	0	-5	3.0				2			148	160						
	(SRB ALONE,	0	0	3.0				2			145	157						
	MODEL ROLLED)	0	5	3.0				2			149	161						
	↓	0	10	3.0				2			150	162						
		0	20	3.0				2			151	163						
		0	40	3.0				2			152	164						
		0	48	3.0				2			153	165						
</																		

TABLE II. - (Concluded).

RESULTANT DATA SET	DATA SET/DATA SET
AQ3BAA	MQ3BAA/MQ3BCA
AQ3UAA	MQ3UAA/MQ3UCA
AQ3LAA	MQ3LAA/MQ3LCA
AQ3VAA	MQ3VAA/MQ3VCA
AQ3TAA	MQ3TAA/MQ3TDA
AQ3SAA	MW3SAA/MQ3SEA
AQ3BAB	MQ3BAB/MQ3BCB
AQ3UAB	MW3UAB/MQ3UCB
AQ3LAB	MQ3LAB/MQ3LCB
AQ3VAB	MQ3VAB/MQ3VCB
AQ3TAB	MQ3TAB/MQ3TDB
AQ3SAB	MQ3SAB/MQ3SEB
AQ3BAC	MQ3BAC/MQ3BCC
AQ3UAC	MQ3UAC/MQ3UCC
AQ3LAC	MQ3LAC/MQ3LCC
AQ3VAC	MQ3VAC/MQ3VCC
AQ3TAC	MQ3TAC/MQ3TDC
AQ3SAC	MQ3SAC/MQ3SEC
AQ3BAD	MQ3BAD/MQ3BCD
AQ3UAD	MW3UAD/MQ3UCD
AQ3LAD	MQ3LAD/MQ3LCD
AQ3VAD	MQ3VAD/MQ3VCD
AQ3BAE	MQ3BAE/MQ3BCA
AQ3UAE	MQ3UAE/MQ3UCE
AQ3LAE	MQ3LAE/MQ3LCE
AQ3VAE	MQ3VAE/MQ3VCE

TABLE III. - MODEL DIMENSIONAL DATA

MODEL COMPONENT : BODY - B<sub>17</sub>

GENERAL DESCRIPTION : Fuselage, 3 Configuration, Lightweight Orbiter  
per Rockwell Lines VL70-000139.

MODEL SCALE: 0.010

DRAWING NUMBER VL70-000139

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length - In.	<u>1290.3</u>	<u>12.903</u>
Max Width - In.	<u>267.6</u>	<u>2.676</u>
Max Depth - In.	<u>244.5</u>	<u>2.445</u>
Fineness Ratio	<u>4.82175</u>	<u>4.82175</u>
Area - Ft <sup>2</sup>	<u>          </u>	<u>          </u>
Max. Cross-Sectional	<u>386.67</u>	<u>0.03867</u>
Planform	<u>          </u>	<u>          </u>
Wetted	<u>          </u>	<u>          </u>
Base	<u>          </u>	<u>          </u>

TABLE III. - Continued.

MODEL COMPONENT : CANOPY - C<sub>7</sub>GENERAL DESCRIPTION : Configuration 3 per Rockwell LinesVL70-000139.MODEL SCALE: 0.010DRAWING NUMBER VL70-000139

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length ( $x_o=433$ to $x_o=670$ ) in.FS	<u>237.0</u>	<u>2.37</u>
Max Width	<u>          </u>	<u>          </u>
Max Depth	<u>          </u>	<u>          </u>
Fineness Ratio	<u>          </u>	<u>          </u>
Area	<u>          </u>	<u>          </u>
Max. Cross-Sectional	<u>          </u>	<u>          </u>
Planform	<u>          </u>	<u>          </u>
Wetted	<u>          </u>	<u>          </u>
Base	<u>          </u>	<u>          </u>

TABLE III. - Continued.

MODEL COMPONENT: ELEVON - E<sub>22</sub>GENERAL DESCRIPTION: 3 Configuration per W<sub>103</sub> Rockwell LinesVL70-000139 data for (1) of (2) sides.Model scale: 0.010DRAWING NUMBER: VL70-000139

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Area - Ft <sup>2</sup>	<u>205.52</u>	<u>0.02055</u>
Span (equivalent) - In.	<u>353.34</u>	<u>3.5334</u>
Inb'd equivalent chord	<u>114.78</u>	<u>1.1478</u>
Outb'd equivalent chord	<u>55.00</u>	<u>0.550</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	<u>0.208</u>	<u>0.208</u>
At Outb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
Sweep Back Angles, degrees		
Leading Edge	<u>0.00</u>	<u>0.00</u>
Trailing Edge	<u>- 10.24</u>	<u>- 10.24</u>
Hingeline	<u>0.00</u>	<u>0.00</u>
Area Moment (Normal to hinge line) - Ft <sup>3</sup>	<u>1548.07</u>	<u>0.00155</u>



TABLE III. - Continued.

MODEL COMPONENT : BODY FLAP - F<sub>5</sub>GENERAL DESCRIPTION : 3 Configuration per Rockwell LinesVL70-000139MODEL SCALE: 0.010DRAWING NUMBER VL70-000139

## DIMENSIONS :

## FULL SCALE

## MODEL SCALE

Length - In.

84.700.8470

Max Width - In.

267.62.676

Max Depth

Fineness Ratio

Area - Ft<sup>2</sup>

Max. Cross-Sectional

Planform

Wetted

Base

140.000.014038.09580.00380

TABLE III. - Continued.

MODEL COMPONENT: OMS Pods - M<sub>4</sub>

GENERAL DESCRIPTION: Configuration 3 per Rockwell Lines VL70-000139.

NOTE: M<sub>4</sub> identical to M<sub>3</sub>, except intersection to fuselage.

Model Scale = 0.010

DRAWING NUMBER

VL70-000139

DIMENSION:

FULL SCALE

MODEL SCALE

Length - IN

346.0

3.460

Max Width - IN

108.0

1.080

Max Depth - IN

113.0

1.130

Fineness Ratio

Area - FT<sup>2</sup>

Max Cross-Sectional

Planform

Wetted

Base

TABLE III. - Continued.

MODEL COMPONENT: BSRM NOZZLES - N<sub>16</sub>GENERAL DESCRIPTION: 3 Configuration BSRM Nozzles per Rockwell LinesVL77-000036 and VL72-000088, Data for (1) of (2) sidesModel Scale = 0.010DRAWING NO. VL72-000088  
VL77-000036

DIMENSIONS	FULL-SCALE	MODEL SCALE
MACH NO. _____		
DIAMETER DEX ~ IN (@ $X_T = 1941$ )	<u>178.5</u>	<u>1.785</u>
DIAMETER DT ~ IN	<u>          </u>	<u>          </u>
DIAMETER DIN ~ IN	<u>          </u>	<u>          </u>
ON ~ DEGREES	<u>          </u>	<u>          </u>
AREA - FT <sup>2</sup>		
MAX CROSS-SECTIONAL	<u>173.78</u>	<u>0.01738</u>
GIMBAL ORIGIN	<u>X<sub>o</sub></u>	<u>Y<sub>o</sub></u> <u>Z<sub>o</sub></u>
LEFT NOZZLE ~ IN FS	<u>1738</u>	<u>-243</u> <u>400</u>
RIGHT NOZZLE ~ IN FS	<u>1738</u>	<u>+243</u> <u>400</u>
NULL POSITION	<u>PITCH</u>	<u>YAW</u>
LEFT NOZZLE - DEG.	<u>+8°</u>	<u>+8°</u>
RIGHT NOZZLE - DEG	<u>+8°</u>	<u>+8°</u>

TABLE III. - Continued.

MODEL COMPONENT: RUDDER - R<sub>5</sub>GENERAL DESCRIPTION: Configuration 140A/B Orbiter Rudder.

MODEL SCALE: 0.010

MODEL DRAWING No.: SS-A00148 RELEASE 6

DRAWING NUMBER: VL70-000146A

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Area - Ft <sup>2</sup>	<u>106.38</u>	<u>.0106</u>
Span (equivalent) - In.	<u>201.0</u>	<u>2.010</u>
Inb'd equivalent chord - In.	<u>91.585</u>	<u>0.916</u>
Outb'd equivalent chord	<u>50.833</u>	<u>0.508</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
At Outb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
Sweep Back Angles, degrees		
Leading Edge	<u>34.83</u>	<u>34.83</u>
Tailing Edge	<u>26.25</u>	<u>26.25</u>
Hingeline	<u>34.83</u>	<u>34.83</u>
Area Moment (Normal to hinge line)-Ft <sup>3</sup>	<u>526.13</u>	<u>0.0005</u>

TABLE III. - Continued.

MODEL COMPONENT : BOOSTER SOLID ROCKET MOTOR - SgGENERAL DESCRIPTION : Booster Solid Rocket, 3 Configuration, Body  
of Revolution, Data for (1) of (2) sides, per Rockwell Lines VL77-000036  
and VL72-000088MODEL SCALE: 0.010DRAWING NUMBER VL72-000088, VL77-000036

## DIMENSIONS :

## FULL SCALE

## MODEL SCALE

Length (Includes Nozzle) - In.	<u>1741.0</u>	<u>17.410</u>
Max Width (Tank Dia.) - In.	<u>142.0</u>	<u>1.420</u>
Max Depth (Aft Shroud) - In.	<u>205.0</u>	<u>2.050</u>
Fineness Ratio	<u>8.49268</u>	<u>8.49268</u>
Area - Ft <sup>2</sup>	<u>          </u>	<u>          </u>
Max. Cross-Sectional	<u>229.21</u>	<u>0.02292</u>
Planform	<u>          </u>	<u>          </u>
Wetted	<u>          </u>	<u>          </u>
Base	<u>          </u>	<u>          </u>
WP of BSRM Centerline (Z <sub>T</sub> ) - In.	<u>400.0</u>	<u>4.00</u>
FS of BSRM Nose (X) - In.	<u>200.0</u>	<u>2.00</u>

TABLE III. - Continued.

MODEL COMPONENT: External tank with protuberances, T15

GENERAL DESCRIPTION: External oxygen-hydrogen tank; vehicle 3 Configuration  
per Rockwell lines VL78-000041B and VL72-000088B. Model Scale = 0.010

DRAWING NUMBER: VL78-000041B  
VL72-000088B

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length - In. (Nose @ $X_T=309$ )	<u>1865</u>	<u>18.65</u>
Max. Width (Dia.)-In.	<u>324</u>	<u>3.24</u>
Max. Depth	<u>-</u>	<u>-</u>
Fineness Ratio	<u>5.756</u>	<u>5.756</u>
Area - $FT^2$		
Max. Cross-Sectional	<u>572.555</u>	<u>0.057</u>
Planform	<u>          </u>	<u>          </u>
Wetted	<u>          </u>	<u>          </u>
Base	<u>          </u>	<u>          </u>
WP of Tank Centerline ( $X_T$ ) In.	<u>400.0</u>	<u>4.000</u>

TABLE III. - Concluded.

MODEL COMPONENT: External Tank without protubrances, T22

GENERAL DESCRIPTION: External Oxygen-Hydrogen Tank, Vehicle 3 Configuration,  
per Rockwell lines VL78-000041B and VL72-000088B

Model Scale = 0.010

DRAWING NUMBER: VL78-000041B  
VL72-000088B

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length - In. (Nose $\bullet X_T = 309$ )	<u>1865</u>	<u>18.65</u>
Max. Width (Dia.)-In.	<u>324</u>	<u>3.24</u>
Max. Depth	<u>-</u>	<u>-</u>
Finess Ratio	<u>5.756</u>	<u>5.756</u>
Area - FT <sup>2</sup>		
Max. Cross-Sectional	<u>572.555</u>	<u>0.057</u>
Planform	<u>          </u>	<u>          </u>
Wetted	<u>          </u>	<u>          </u>
Base	<u>          </u>	<u>          </u>
WP of Tank Centerline ( $X_T$ ) In.	<u>400.0</u>	<u>4.000</u>

TABLE III. - Continued.

MODEL COMPONENT: VERTICAL - V<sub>7</sub>GENERAL DESCRIPTION: Centerline vertical tail, doublewedge airfoil with rounded leading edge.NOTE: Same as V5, but with manipulator housing removed.MODEL SCALE: 0.010DRAWING NUMBER: VL70-000139

DIMENSIONS:	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
TOTAL DATA		
Area (Theo) - Ft <sup>2</sup>		
Planform	<u>425.92</u>	<u>0.04259</u>
Span (Theo) - In.	<u>315.72</u>	<u>3.1572</u>
Aspect Ratio	<u>1.675</u>	<u>1.675</u>
Rate of Taper	<u>0.507</u>	<u>0.507</u>
Taper Ratio	<u>0.404</u>	<u>0.404</u>
Sweep-Back Angles, Degrees.		
Leading Edge	<u>45.000</u>	<u>45.000</u>
Trailing Edge	<u>26.249</u>	<u>26.249</u>
0.25 Element Line	<u>41.130</u>	<u>41.130</u>
Chords:		
Root (Theo) WP	<u>268.50</u>	<u>2.6850</u>
Tip (Theo) WP	<u>108.47</u>	<u>1.0847</u>
MAC	<u>199.81</u>	<u>1.9981</u>
Fus. Sta. of .25 MAC	<u>1463.50</u>	<u>14.635</u>
W.P. of .25 MAC	<u>635.522</u>	<u>6.35522</u>
B.L. of .25 MAC	<u>0 0.00</u>	<u>0.00</u>
Airfoil Section		
Leading Wedge Angle - Deg.	<u>10.000</u>	<u>10.000</u>
Trailing Wedge Angle - Deg.	<u>14.920</u>	<u>14.920</u>
Leading Edge Radius	<u>2.000</u>	<u>0.020</u>
Void Area - Ft <sup>2</sup>	<u>13.17</u>	<u>0.00132</u>
Blanketed Area	<u>0.00</u>	<u>0.00</u>



TABLE III. - Continued.

MODEL COMPONENT: WING-W<sub>103</sub>GENERAL DESCRIPTION: Configuration 3 Orbiter per Lines VI.70-000139.NOTE: Same planform as W<sub>07</sub>, except dihedral at Trailing Edge.MODEL SCALE: 0.010TEST NO. \_\_\_\_\_ DWG. NO. VI.70-000139DIMENSIONS: FULL-SCALE MODEL SCALETOTAL DATAArea (Theo.)  $\text{Ft}^2$ 

Planform

2690.00

0.2690

Span (Theo.) In.

936.68

9.3668

Aspect Ratio

2.265

2.265

Rate of Taper

1.177

1.177

Taper Ratio

0.200

0.200

Dihedral Angle, degrees

3.500

3.500

Incidence Angle, degrees

3.000

3.000

Aerodynamic Twist, degrees

+ 3.000

+ 3.000

Sweep Back Angles, degrees

Leading Edge

45.000

45.000

Trailing Edge

- 10.24

- 10.24

0.25 Element Line

35.209

35.209

## Chords:

Root (Theo) B.P.0.0.

689.24

6.8924

Tip, (Theo) B.P.

137.85

1.3785

MAC

474.81

4.7481

Fus. Sta. of .25 MAC

1136.89

11.3689

W.P. of .25 MAC

299.20

2.9920

B.L. of .25 MAC

182.13

1.8213

EXPOSED DATAArea (Theo)  $\text{Ft}^2$ 

1752.29

0.1752

Span, (Theo) In. BP108

720.68

7.2068

Aspect Ratio

2.058

2.058

Taper Ratio

0.2451

0.2451

## Chords

Root BP108

562.40

5.6240

Tip  $1.00 \frac{b}{2}$ 

137.85

1.3785

MAC

393.03

3.9303

Fus. Sta. of .25 MAC

1185.31

11.8531

W.P. of .25 MAC

300.20

3.0020

B.L. of .25 MAC

251.76

2.5176

Airfoil Section (Rockwell Mod NASA)

XXXX-64

Root  $\frac{b}{2} =$ 

0.10

0.10

Tip  $\frac{b}{2} =$ 

0.12

0.12

Data for (1) of (2) Sides

Leading Edge Cuff  $\frac{2}{2}$ Planform Area  $\text{Ft}^2$ 

120.33

0.01203

Leading Edge Intersects Fus M. L. @ Sta

560.0

5.600

Leading Edge Intersects Wing @ Sta

1035.0

10.350

TABLE IV. - ORIFICE LOCATIONS.

26-OTS Orbiter  
LREF = 1290.3

Pressure Tap Locations  
Bottom Centerline

Orifice No.	X/L	X <sub>0</sub> (F.S.)
1	0	238.00
2	.005	244.452
3	.020	263.806
4	.040	289.612
5	.060	315.418
6	.080	341.224
7	.100	367.030
8	.150	431.545
9	.200	496.060
10	.300	625.090
11	.400	754.120
12	.500	883.150
13	.600	1012.180
14	.800	1270.240
15	.950	1463.785
16	.975	1496.043
17	1.000	1528.300
18	1.025	1560.558
19	1.050	1592.815

Top Centerline

Orifice No.	X/L	X <sub>0</sub> (F.S.)
20	.050	302.515
21	.100	367.030
22	.125	399.288
23	.150	431.545
24	.160	444.448
25	.170	457.351
26	.180	470.254
27	.200	496.060
28	.300	625.090
29	.600	1012.180

Bottom Surface  
B.P = -50" (F.S.)

Orifice No.	X/L	X <sub>0</sub>
33	.20	496.060
34	.30	625.090

Windshield Left Side

30	Center of forward window
31	Center of oblique window
32	Center of aft window

Cross Sections (Left Side)

Orifice No.	X/L	X <sub>0</sub> (F.S.)	
35	.10	367.030	Ø = 10°
36			Ø = 20°
37			CCL Tangent
38			HMB Tangent
39	.20	496.060	CCL Tangent
40			Ø = 35°
41			Ø = 40°
42			Ø = 50° (Z=320)
43			Ø=96.3 (Z=410)
44	.30	625.090	Ø=33.1 (V <sub>0</sub> =75)
45			Ø = 40
46			Ø = 45
47			Ø = 57 (Z=330)
48			Ø=60.9 (Z=340)
49			Ø=65 (Z=350)
50			Ø=69 (Z=360)
51			Ø=95.7 (Z=410)
52			Ø = 135
53	.60	1012.180	Ø=79.3 (Z=380)
54			Ø=95.5 (Z=410)
55			Ø=103 (Z=425)
56			Ø=112.6 (Z=440)
57			Ø=135
58	.80	1270.24	Ø=95.5 (Z=410)
59	.975	1496.043	Ø=51.6 (Z=300)
60			Ø=68.0 (Z=350)

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TABLE IV. - Continued.

26-OTS Orbiter - Continued  
0.010-Scale

OMS Pods (Left Side)

<u>Orifice</u> <u>No.</u>	<u>X/L</u>	<u>X<sub>o</sub>FULL</u>	<u>Y<sub>o</sub>FULL</u>	<u>Z<sub>o</sub>FULL</u>	<u>Ø°</u>
61	.780	1245	-95	474	127.9
62	.805	1276	-105.5	488	129.5
63	.829	1307	-117.0	498.7	130
64	.862	1350	-126.5	506	130
65	.963	1480	-134.5	513	130
66	.829	1307	-95.0	511	139.6
67	.963	1480	-95.0	530	144
68	.829	1307	-124.5	474	120.8
69	.963	1480	-142.5	474	117.5
70	1.000	1528.3	-142.5	474	117.5
71	1.0145	1547	Bottom of PCS		

Left Wing Bottom Surface

<u>b/2</u>	<u>Orifice</u> <u>No.</u>	<u>X/L</u>	<u>X/C</u>	<u>X<sub>o</sub>FULL</u>
.25	72	.40	.153	754.120
V <sub>o</sub> =117.085	73	.50	.299	883.150
C=886.0	74	.60	.444	1012.180
X <sub>o</sub> LE=618.5	75	.80	.736	1270.240
.40	76	.592	.025	1002.063
V <sub>o</sub> =187.336	77	.600	.045	1012.180
C=502.5	78	.660	.200	1090.000
X <sub>o</sub> LE=989.5	79	.700	.302	1141.210
	80	.80	.559	1270.240
	81	.933	.900	1441.750
.50	82	.651	.025	1077.913
V <sub>o</sub> =234.170	83	.700	.177	1141.210
C=416.5	84	.800	.487	1270.240
X <sub>o</sub> LE=1067.5				
.60	85	.708	.100	1152.000
V <sub>o</sub> =281.004	86	.800	.428	1270.240
C=360.0	87	.845	.600	1332.000
X <sub>o</sub> LE=1116.0	88	.876	.700	1368.000
	89	.904	.800	1404.000
	90	.918	.850	1422.000
	91	.932	.900	1440.000

TABLE IV. - Continued.

26-OTS Orbiter - Continued  
0.010-Scale

Left Wing Bottom Surface - Continued

<u>b/2</u>	<u>Orifice No.</u>	<u>X/L</u>	<u>X/C</u>	<u>X<sub>o</sub>FULL</u>
.75 Y <sub>o</sub> =351.255 C=277.0 X <sub>o</sub> LE=1186.5	92	.740	.025	1193.425
	93	.800	.302	1270.240
	94	.928	.900	1435.800
.85 Y <sub>o</sub> =398.089 C=222.0 X <sub>o</sub> LE=1233.0	95	.788	.100	1255.2
.95 Y <sub>o</sub> =444.923 C=158.5 X <sub>o</sub> LE=1288.0	96	.826	.10	1303.850
	97	.924	.90	1430.650
.99.8	98	.90	0-LE	1398.95

Leading Edge (Left Wing)  
Rolled Down 30°

<u>b/2</u>	<u>Orifice No.</u>	<u>X/L</u>	<u>X<sub>o</sub></u>
.30106	99	.40	LE Rolled 30° Down
.34803	100	.50	LE Rolled 30° Down
.50	101	.643	LE Rolled 30° Down
.60	102 to 107	Group A - See Sketch	
.75	108		LE Rolled 30° Down
.85	109 to 114	Group B - See Sketch	

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TABLE IV. - Continued.

26-OTS Orbiter - Continued  
0.010-Scale

Right Wing Top Surface

<u>b/2</u>	<u>Orifice No.</u>	<u>X/L</u>	<u>X/C</u>	<u>X<sub>o</sub>FULL</u>
.40	115	.602	.05	1014.625
Y <sub>o</sub> =187.336	116	.660	.20	1090.000
C=502.5	117	.816	.60	1291.000
X <sub>o</sub> LE=989.5				
.60	118	.736	.20	1188.000
Y <sub>o</sub> =281.004	119	.848	.60	1332.000
C=360.0	120	.904	.80	1404.000
X <sub>o</sub> LE=1116.0	121	.932	.90	1440.000
	122	.946	.95	1458.000
.80	123	.782	.20	1246.960
Y <sub>o</sub> =374.672	124	.884	.90	1378.070
C=187.3				
X <sub>o</sub> LE=1209.5				

Vertical Tail (Left Side)

<u>Orifice No.</u>	<u>Z<sub>o</sub>/ov</u>	<u>Z<sub>o</sub></u>	<u>X<sub>o</sub></u>	<u>X/C</u>
125	.299	594.34	L.E.	0
126	.299	594.34	1438.2	.30
127	.299	594.34	1570.5	.90
128	.532	667.9	L.E.	0
129	.532	667.9	1500.8	.30
130	.532	667.9	1537.0	.50
131	.532	667.9	1585.5	.70
132	.532	667.9	1611.0	.90
133	.765	741.49	L.E.	0
134	.765	741.49	1563.8	.30
135	.765	741.49	1651.2	.90
136	.905	785.6	L.E.	0

TABLE IV. - Continued.

26-OTS

External Tank - 0.010-Scale  
 LT = 2174-309 = 1865 F.S. = 18.650 M.S.

Orifice No.	X/L	$\theta$	X <sub>FS</sub>	X <sub>MS</sub>
501	.04	0°	74.60	0.746
502	.08	0°	149.20	1.492
503	.15	0°	279.75	2.7975
504	.40	0°	746.00	7.460
505	.60	0°	1119.00	11.190
506	.80	0°	1492.00	14.920
507	.40	45°	746.00	7.460
508	.60	45°	1119.00	11.190
509	.80	45°	1492.00	14.920
510	.90	45°	1678.50	16.785
511	.30	67.5°	559.50	5.595
512	.35	67.5°	652.75	6.5275
513	.40	67.5°	746.00	7.460
514	.50	67.5°	932.50	9.320
515	.60	67.5°	1119.00	11.190
516	.65	67.5°	1212.25	12.1225
517	.70	67.5°	1305.50	13.055
518	.75	67.5°	1398.75	13.9875
519	.80	67.5°	1492.00	14.920
520	.90	67.5°	1678.50	16.785
521	.20	90°	373.00	3.730
522	.25	90°	466.25	4.6625
523	.275	90°	512.875	5.12875
524	.30	90°	559.50	5.5950
525	.325	90°	606.125	6.06125
526	.35	90°	652.75	6.5275
527	.40	90°	746.00	7.460
528	.45	90°	839.25	8.3925
529	.50	90°	932.50	9.3250
530	.55	90°	1025.75	10.2575
531	.60	90°	1119.00	11.190
532	.65	90°	1212.25	12.1225
533	.70	90°	1305.50	13.0550
534	.75	90°	1398.75	13.9875
535	.80	90°	1492.00	14.9200
536	.85	90°	1585.25	15.8525
537	.90	90°	1678.50	16.7850
538	.275	112.5°	512.875	5.12875
539	.30	112.5°	559.50	5.5950
540	.325	112.5°	606.125	6.06125
541	.35	112.5°	652.75	6.5275
542	.40	112.5°	746.00	7.460
543	.45	112.5°	839.25	8.3925
544	.50	112.5°	932.50	9.3250

TABLE IV. - Continued.

26-OTS - Continued

Orifice No.	X/L	$\theta$	XFS	XMS
545	.55	112.5°	1025.75	10.2575
546	.60	112.5°	1119.00	11.1900
547	.65	112.5°	1212.25	12.1225
548	.70	112.5°	1305.50	13.0550
549	.75	112.5°	1398.75	13.9875
550	.80	112.5°	1492.00	14.9200
551	.85	112.5°	1585.25	15.8525
552	.90	112.5°	1678.50	16.7850
553	.825	123°	1538.625	15.38625
554	.85	123°	1585.25	15.8525
555	.875	123°	1631.875	16.31875
556	.90	123°	1678.50	16.7850
557	.925	123°	1725.125	17.25125
558	.96	123°	1790.40	17.9040
559	.325	135°	606.125	6.06125
560	.35	135°	652.75	6.5275
561	.375	135°	699.375	6.99375
562	.40	135°	746.00	7.4600
563	.45	135°	839.25	8.3925
564	.50	135°	932.50	9.3250
565	.55	135°	1025.75	10.2575
566	.60	135°	1119.00	11.1900
567	.65	135°	1212.25	12.1225
568	.70	135°	1305.50	13.0550
569	.75	135°	1398.75	13.9875
570	.80	135°	1492.00	14.9200
571	.85	135°	1585.25	15.8525
572	.90	135°	1678.50	16.7850
573	.935	151°	1743.775	17.43775
574	.40	157.5°	746.00	7.4600
575	.425	157.5°	792.625	7.92625
576	.45	157.5°	839.25	8.3925
577	.475	157.5°	885.875	8.85875
578	.50	157.5°	932.50	9.3250
579	.55	157.5°	1025.75	10.2575
580	.60	157.5°	1119.00	11.1900
581	.65	157.5°	1212.25	12.1225
582	.70	157.5°	1305.50	13.0550
583	.75	157.5°	1398.75	13.9875
584	.80	157.5°	1492.00	14.9200
585	.85	157.5°	1585.25	15.8525
586	.90	157.5°	1678.50	16.7850
587	.425	161°	792.625	7.92625
588	.50	166°	932.50	9.3250
589	.70	166°	1305.50	13.0550
590	.90	166°	1678.50	16.7850

TABLE IV. - Continued.

26-OTS - Continued

Orifice No.	X/L	$\theta$	XFS	XLS
591	.40	167°	746.00	7.4600
592	0.00	180°	0.00	0.00
593	.005	180°	9.325	0.09325
594	.01	180°	18.65	0.1865
595	.04	180°	74.60	0.7460
596	.08	180°	149.20	1.4920
597	.15	180°	279.75	2.7975
598	.20	180°	373.00	3.730
599	.25	180°	466.25	4.6625
600	.30	180°	559.50	5.5950
601	.35	180°	652.75	6.5275
602	.375	180°	699.375	6.99375
603	.40	180°	746.00	7.460
604	.425	180°	792.625	7.92625
605	.45	180°	839.25	8.3925
606	.475	180°	885.875	8.85875
607	.50	180°	932.50	9.3250
608	.525	180°	979.125	9.79125
609	.55	180°	1025.75	10.2575
610	.575	180°	1072.375	10.72375
611	.60	180°	1119.00	11.1900
612	.65	180°	1212.25	12.1225
613	.70	180°	1305.50	13.0550
614	.75	180°	1398.75	13.9875
615	.80	180°	1492.00	14.920
616	.85	180°	1585.25	15.8525
617	.90	180°	1678.50	16.7850
618	.937	180°	1747.505	17.47505
619	.975	180°	1818.375	18.18375
620	.08	197°	149.20	1.4920
621	.15	197°	279.75	2.7975
622	.30	197°	559.50	5.5950
623	.50	197°	932.50	9.3250
624	.70	197°	1305.50	13.0550
625	.90	197°	1678.50	16.7850
626	.15	210°	279.75	2.7975
627	.40	210°	746.00	7.4600
628	.60	210°	1119.00	11.1900
629	.80	210°	1492.00	14.9200
630	.937	210°	1747.505	17.47505
631	.40	220°	746.00	7.4600
632	.50	220°	932.50	9.3250
633	.70	220°	1305.50	13.0550
634	.335	225°	624.775	6.24775
635	.40	232°	746.00	7.4600
636	.60	232°	1119.00	11.1900
637	.80	232°	1492.00	14.9200



TABLE IV. - Concluded.

26-OTS Solid Rocket Motor  
0.010-Scale

Orifice No.	X/L	$\psi^\circ$	$X_s(\text{FULL})$	Orifice No.	X/L	$\psi^\circ$	$X_s(\text{FULL})$
701	.00	90	200.000	735	.900	225	1708.400
702	.025	90	241.900	736	.930	225	1758.680
703	.050	90	283.800	737	.960	225	1808.960
704	.100	90	367.600	738	.990	225	1859.240
705	.400	90	870.400	739	.930	240	1758.680
706	.700	90	1373.200	740	.960	240	1808.960
707	.780	90	1498.0	741	.990	240	1859.240
708	.800	90	1540.800	742	.300	247.5	702.800
709	.930	90	1758.680	743	.400	247.5	870.400
710	.990	90	1859.240	744	.500	247.5	1038.000
711	.050	180	283.800	745	.600	247.5	1205.600
712	.100	180	367.600	746	.700	247.5	1373.200
713	.200	180	535.200	747	.115	260	392.740
714	.400	180	870.400	748		270	(45° RL from nose radius)
715	.600	180	1205.600	749	.025	270	241.900
716	.700	180	1373.200	750	.050	270	283.800
717	.780	180	1498.0	751	.075	270	325.700
718	.800	180	1540.800	752	.100	270	367.600
719	.900	180	1708.400	753	.110	270	384.360
720	.930	180	1758.680	754	.130	270	417.880
721	.960	180	1808.960	755	.150	270	451.400
722	.990	180	1859.240	756	.200	270	535.200
723	.910	210	1725.160	757	.300	270	702.800
724	.920	210	1741.920	758	.400	270	870.400
725	.930	210	1758.680	759	.500	270	1038.000
726	.950	210	1764.440	760	.600	270	1205.600
727	.925	215	1736.42	761	.700	270	1373.200
728	.940	215	1775.440	762	.780	270	1498.0
729	.960	215	1808.960	763	.800	270	1540.800
730	.150	225	451.400	764	.900	270	1708.400
731	.400	225	870.400	765	.930	270	1758.680
732	.600	225	1205.600	766	.990	270	1859.240
733	.780	225	1498.0	767	.300	315	702.800
734	.800	225	1540.800	768	.700	315	1373.200

Skirt  
Diagram

ORIGINAL PAGE IS  
OF POOR QUALITY

TABLE V.

## ORIFICE VS VALVE-PORT

Orifice	Valve	Port	Orifice	Valve	Port	Orifice	Valve	Port
1	12	4	41	10	17	81	2	10
2	12	5	42	10	18	82	10	28
3	12	6	43	4	4	83	6	33
4	12	7	44	10	19	84	6	8
5	12	8	45	10	20	85	8	9
6	10	4	46	10	21	86	6	9
7	10	5	47	4	5	87	6	10
8	10	6	48	4	6	88	2	11
9	10	7	49	4	7	89	2	12
10	10	8	50	4	8	90	2	13
11	6	28	51	4	9	91	2	14
12	6	4	52	4	10	92	10	29
13	6	5	53	4	11	93	6	34
14	2	4	54	4	12	94	2	15
15	2	5	55	4	13	95	10	30
16	2	6	56	4	14	96	10	31
17	2	7	57	4	15	97	4	24
18	2	8	58	4	16	98	10	32
19	2	9	59	4	17	99	10	33
20	7	4	60	4	18	100	10	34
21	7	5	61	7	7	101	10	35
22	7	6	62	7	8	102	12	9
23	8	10	63	7	9	103	10	22
24	8	11	64	7	10	104	10	23
25	8	12	65	4	19	105	12	10
26	8	13	66	7	11	106	12	11
27	8	14	67	4	20	107	10	24
28	1	4	68	7	12	108	12	12
29	1	5	69	4	21	109	12	13
30	8	15	70	4	22	110	6	35
31	8	16	71	4	23	111	6	36
32	8	17	72	10	25	112	12	14
33	10	9	73	6	29	113	10	36
34	10	10	74	6	30	114	6	37
35	10	11	75	6	6	115	8	18
36	10	12	76	10	26	116	1	6
37	10	13	77	10	27	117	1	7
38	10	14	78	6	31	118	1	8
39	10	15	79	6	32	119	1	9
40	10	16	80	6	7	120	1	10

TABLE V. - Continued.

## ORIFICE VS VALVE-PORT

Orifice	Valve	Port	Orifice	Valve	Port	Orifice	Valve	Port
121	P L U G E D		521	1	23	561	9	27
122	1	12	522	9	8	562	9	28
123	1	13	523	9	9	563	9	29
124	1	14	524	9	10	564	9	30
125	12	15	525	9	11	565	9	31
126	2	16	526	9	12	566	3	30
127	2	17	527	9	13	567	3	31
128	12	16	528	9	14	568	3	32
129	2	18	529	9	15	569	3	33
130	2	19	530	9	16	570	3	34
131	2	20	531	3	10	571	3	35
132	2	21	532	P L U G G E D		572	3	36
133	12	17	533	3	12	573	5	4
134	2	22	534	3	13	574	11	4
135	2	23	535	3	14	575	11	5
136	12	18	536	3	15	576	11	6
			537	3	16	577	11	7
			538	9	17	578	11	8
			539	9	18	579	11	9
			540	9	19	580	5	5
501	7	13	541	9	20	581	5	6
502	7	14	542	9	21	582	5	7
503	1	15	543	9	22	583	5	8
504	1	16	544	9	23	584	5	9
505	1	17	545	9	24	585	5	10
506	1	18	546	3	17	586	5	11
507	1	19	547	3	18	587	11	10
508	1	20	548	3	19	588	11	11
509	1	21	549	3	20	589	5	12
510	1	22	550	3	21	590	P L U G G E D	
511	9	4	551	3	22	591	11	12
512	9	5	552	3	23	592	12	19
513	9	6	553	P L U G G E D		593	12	20
514	9	7	554	3	25	594	12	21
515	3	4	555	3	26	595	7	15
516	3	5	556	3	27	596	7	16
517	3	6	557	3	28	597	3	37
518	3	7	558	P L U G G E D		598	3	38
519	3	8	559	9	25	599	11	13
520	3	9	560	9	26	600	11	14

TABLE V. - Concluded.

## ORIFICE VS VALVE-PORT

Orifice	Valve	Port	Orifice	Valve	Port	Orifice	Valve	Port
601	11	15	701	12	22	741	7	23
602	11	16	702	5	37	742	6	16
603	11	17	703	5	32	743	6	17
604	11	18	704	5	33	744	6	18
605	11	19	705	1	24	745	6	19
606	11	20	706	1	25	746	6	20
607	11	21	707	12	23	747	12	30
608	11	22	708	12	24	748	12	31
609	11	23	709	7	18	749	11	34
610	11	24	710	7	19	750	11	35
611	5	14	711	11	32	751	11	36
612	5	15	712	11	33	752	12	32
613	5	16	713	9	32	753	12	33
614	5	17	714	6	11	754	12	34
615	5	18	715	P L U G G E D			12	35
616	5	19	716	6	13	756	9	33
617	5	20	717	12	25	757	6	21
618	5	21	718	12	26	758	6	22
619	5	22	719	7	20	759	6	23
620	7	17	720	8	4	760	6	24
621	3	39	721	8	5	761	6	25
622	11	25	722	7	21	762	12	36
623	11	26	723	8	19	763	12	37
624	5	23	724	8	20	764	7	24
625	5	24	725	8	21	765	7	25
626	3	40	726	8	22	766	O P E N	
627	11	27	727	8	23	767	6	26
628	5	25	728	8	24	768	6	27
629	5	26	729	8	25			
630	5	27	730	12	27			
631	11	28	731	6	14			
632	11	29	732	6	15			
633	5	28	733	12	28			
634	11	30	734	12	29			
635	11	31	735	7	22			
636	5	29	736	8	26			
637	5	30	737	8	27			
			738	O P E N				
			739	8	7			
			740	8	8			

TABLE VI  
VALVE-PORT VS ORIFICE NUMBER

PORT	VALVE					
	1	2	3	4	5	6
4	28	14	515	43	573	12
5	29	15	516	47	580	13
6	116	16	517	48	581	75
7	117	17	518	49	582	80
8	118	18	519	50	583	84
9	119	19	520	51	584	86
10	120	81	531	52	585	87
11		88		53	586	714
12	122	89	533	54	589	
13	123	90	534	55		716
14	124	91	535	56	611	731
15	503	94	536	57	612	732
16	504	126	537	58	613	742
17	505	127	546	59	614	743
18	506	129	547	60	615	744
19	507	130	548	65	616	745
20	508	131	549	67	617	746
21	509	132	550	69	618	757
22	510	134	551	70	619	758
23	521	135	552	71	624	759
24	705			97	625	760
25	706		554		628	761
26			555		629	767
27			556		630	768
28			557		633	11
29					636	73
30			566		637	74
31			567			78
32			568		703	79
33			569		704	83
34			570			93
35			571			110
36			572			111
37			597		702	114
38			598			
39			621			
40			626			

TABLE VI. - Concluded.  
VALVE-PORT VS ORIFICE NUMBER

PORT	VALVE					
	7	8	9	10	11	12
4	20	720	511	6	574	1
5	21	721	512	7	575	2
6	22		513	8	576	3
7	61	739	514	9	577	4
8	62	740	522	10	578	5
9	63	85	523	33	579	102
10	64	23	524	34	587	105
11	66	24	525	35	588	106
12	68	25	526	36	591	108
13	501	26	527	37	599	109
14	502	27	528	38	600	112
15	595	30	529	39	601	125
16	596	31	530	40	602	128
17	620	32	538	41	603	133
18	709	115	539	42	604	136
19	710	723	540	44	605	592
20	719	724	541	45	606	593
21	722	725	542	46	607	594
22	735	726	543	103	608	701
23	741	727	544	104	609	707
24	764	728	545	107	610	708
25	765	729	559	72	622	717
26		736	560	76	623	718
27		737	561	77	627	730
28			562	82	631	733
29			563	92	632	734
30			564	95	634	747
31			565	96	635	748
32			713	98	711	752
33			756	99	712	753
34				100	749	754
35				101	750	755
36				113	751	762
37						763
38						
39						
40						

TABLE VII. - S-V CONFIGURATION VS TRANSDUCER

TRANSDUCER LOCATION

TRANSDUCER	RATED LOAD-PSIA
A	5
B	5
C	5
D	5
E	5
F	10
G	10
H	10
I	15
J	15
K	15
L	15

CONFIGURATION VS TRANSDUCER

CONFIG.	VALVE											
	1	2	3	4	5	6	7	8	9	10	11	12
I.V.	A	B	C	D	E	F	G	H	I	J	K	L
ORB.	A	B	*F	D	*E	C	G	H	*I	J	*K	L
TANK	A	*I	C	*K	E	*F	G	*H	B	*J	D	L
SRB	A	*I	*F	*K	E	C	G	H	B	*J	D	L

\*Not used for this configuration

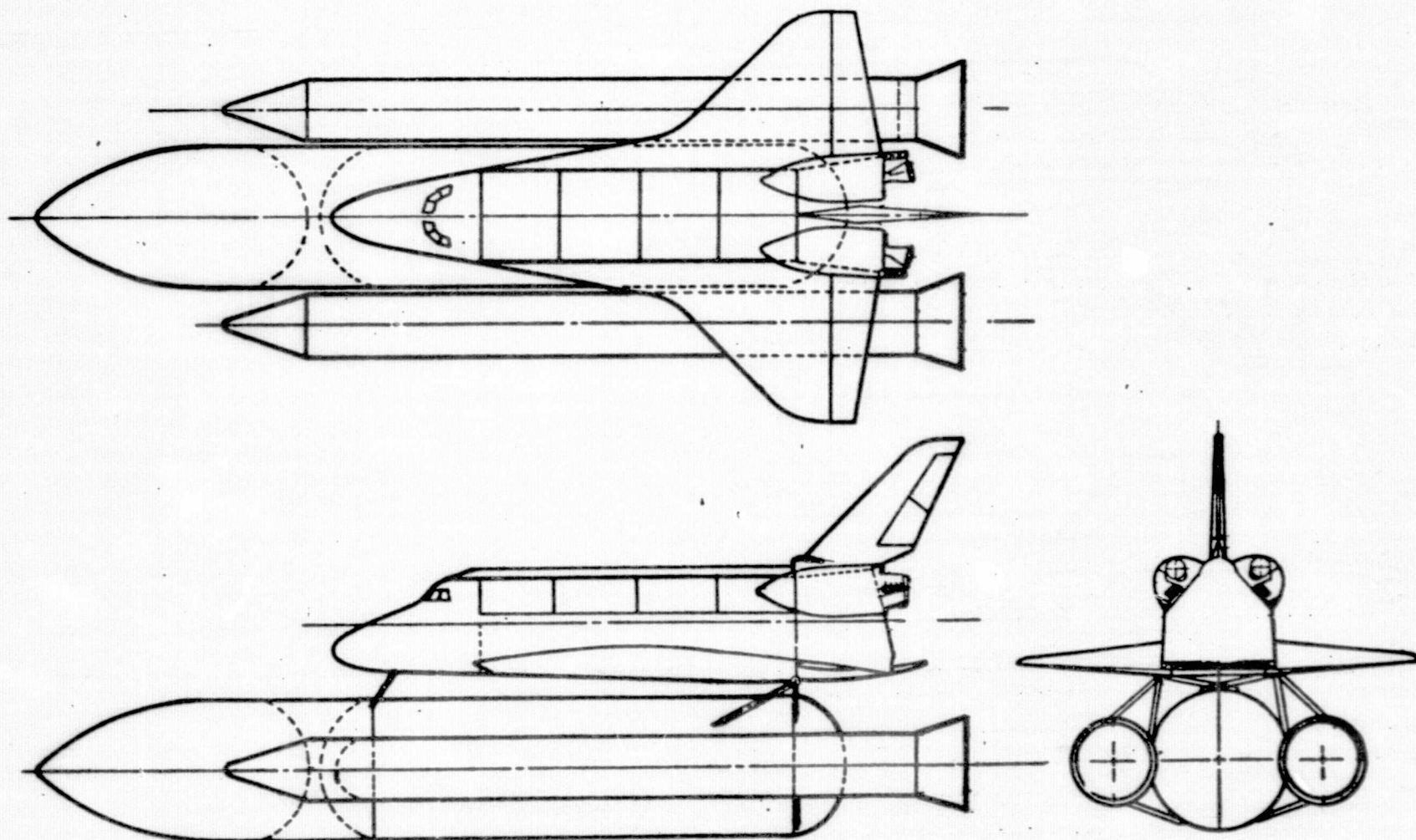
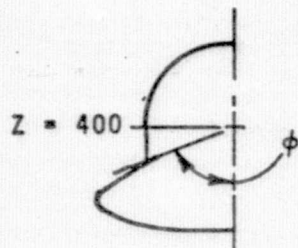


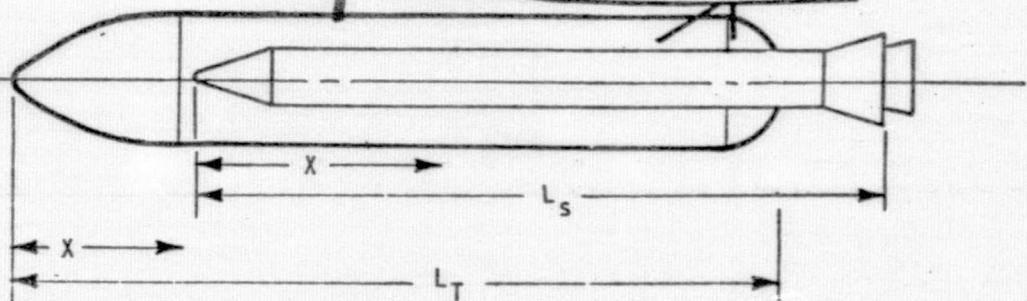
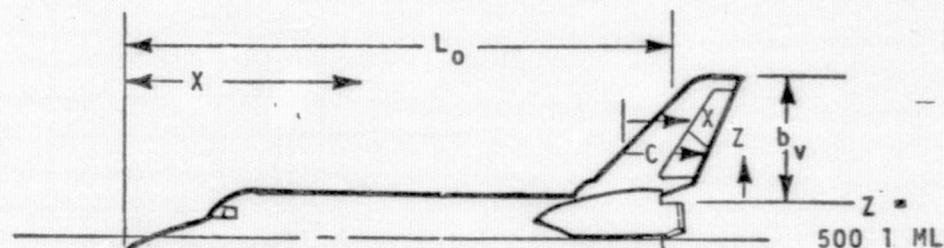
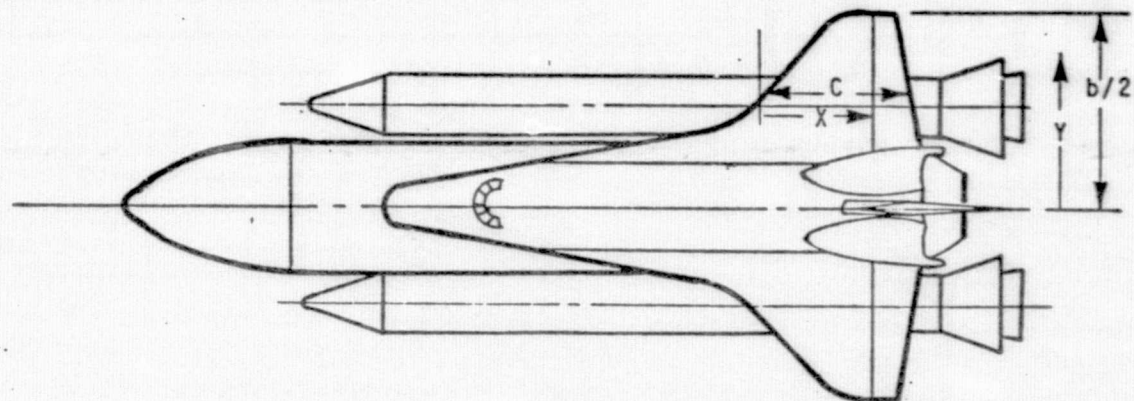
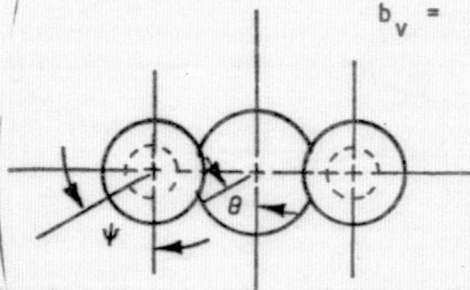
Figure 1. - Integrated Vehicle General Arrangement.





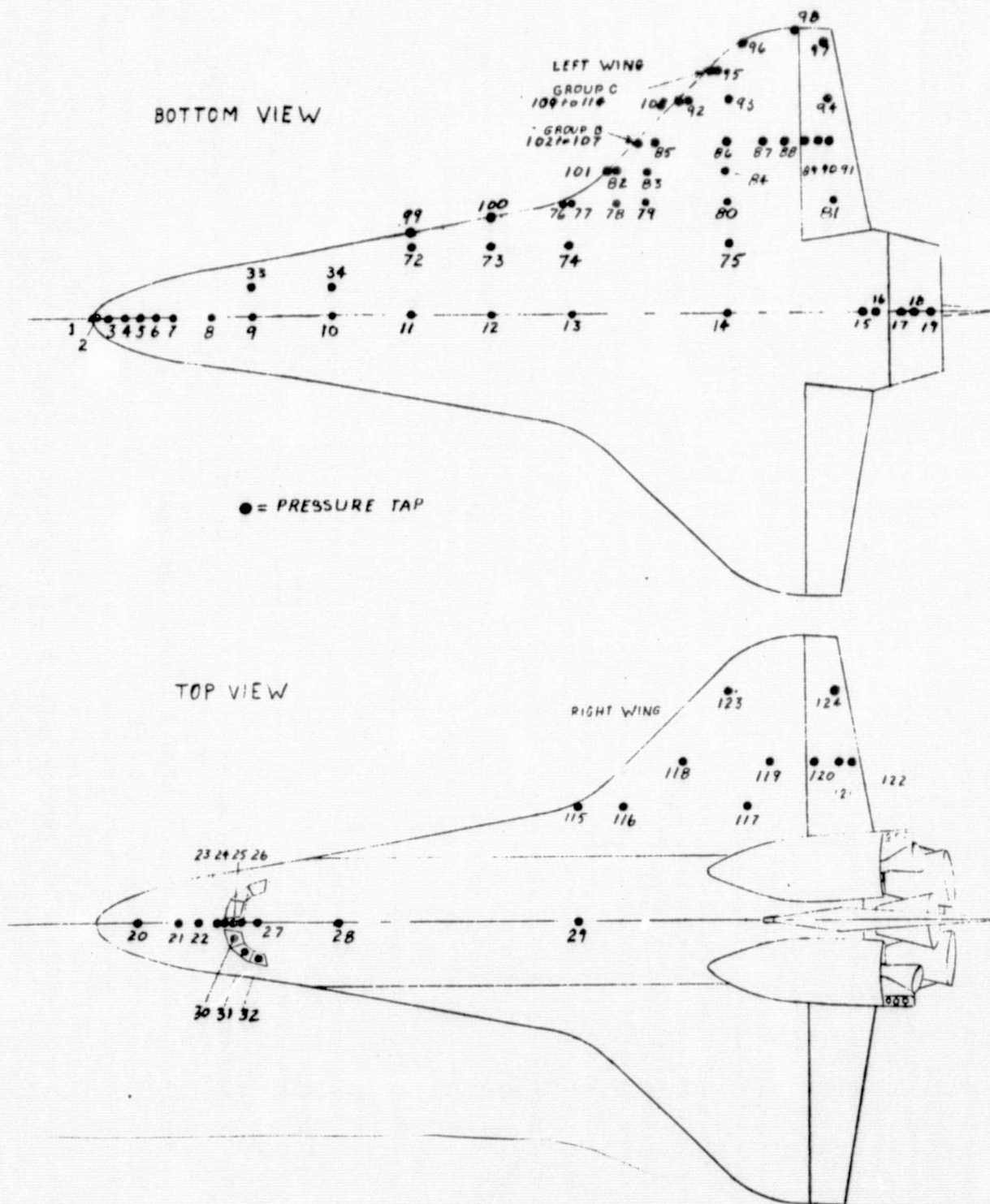
VIEW LOOKING FORWARD  $\psi$ ,  
 $\theta$  AND  $\phi$  MEASURED FROM  
 BOTTOM & CLOCKWISE

$L_0 = 1290.3$   
 $L_T = 1865.0$   
 $L_S = 1676.0$   
 $b/2 = 468.34$   
 $b_v = 315.72$



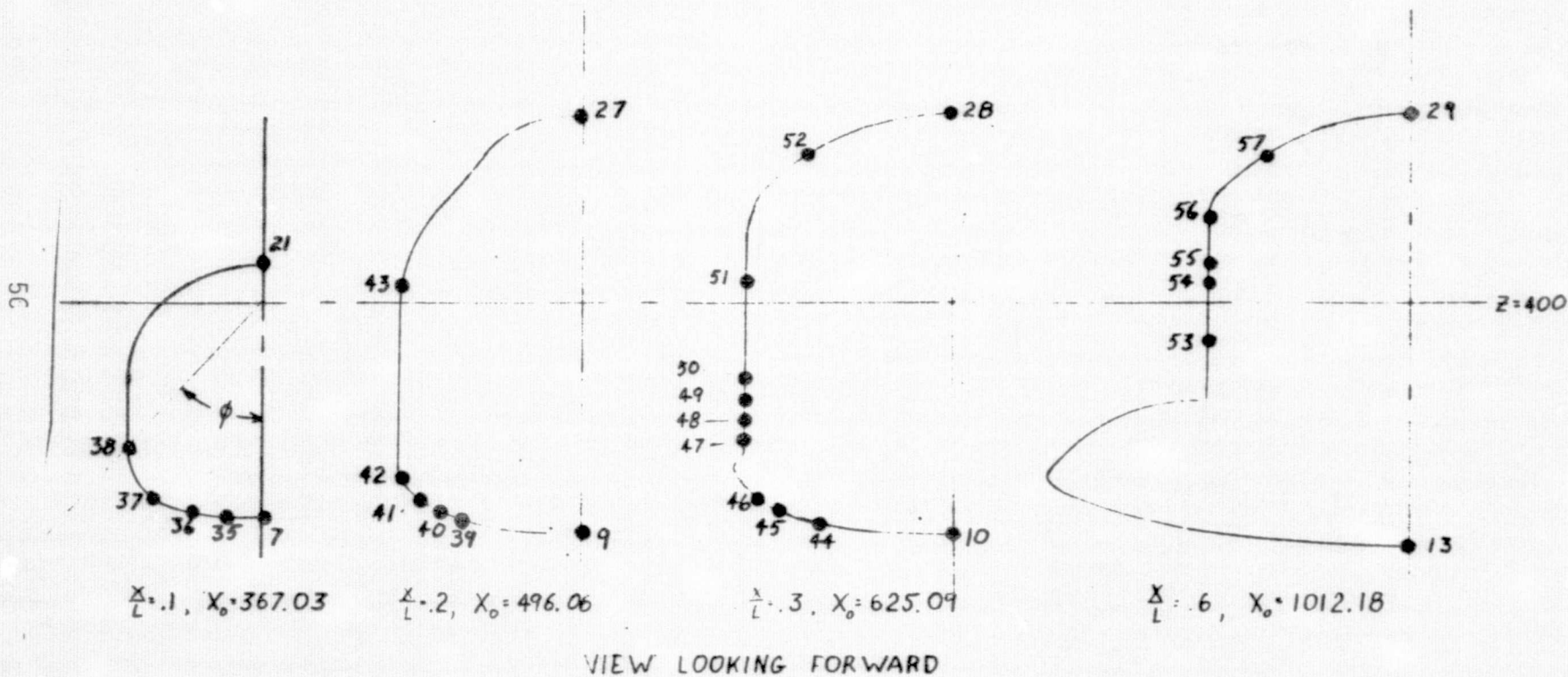
a. Instrumentation Location

Figure 2. - Model sketches.



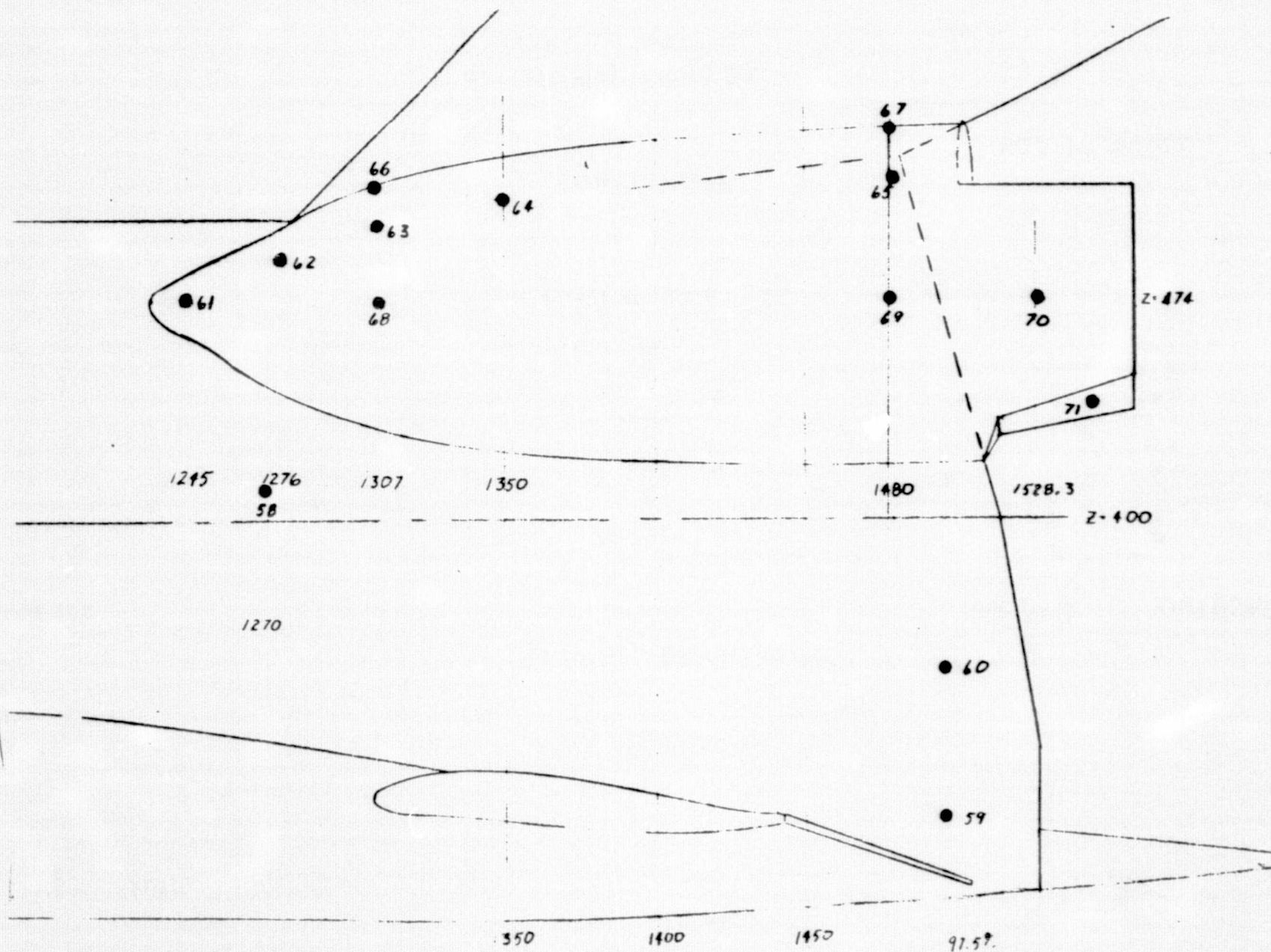
b. 26-OTS Orbiter  
Figure 2. - Continued.

ORIGINAL PAGE IS  
OF POOR QUALITY



c. 26-OTS Orbiter Fuselage Cross-Section  
Figure 2. - Continued.





d. 26-OTS Orbiter OMS Pods  
Figure 2. - Continued.

TOP SURFACE

$$Y/b = .30106$$

.34863

.50

.60

.75

.85

TRUE LEADING EDGE

LEADING EDGE AT  $\alpha = 30^\circ$

INBOARD

GROUP A

GROUP B

OUTBOARD

50

99

100

101

102

105

106

103

107

104

108

109

112

113

110

114

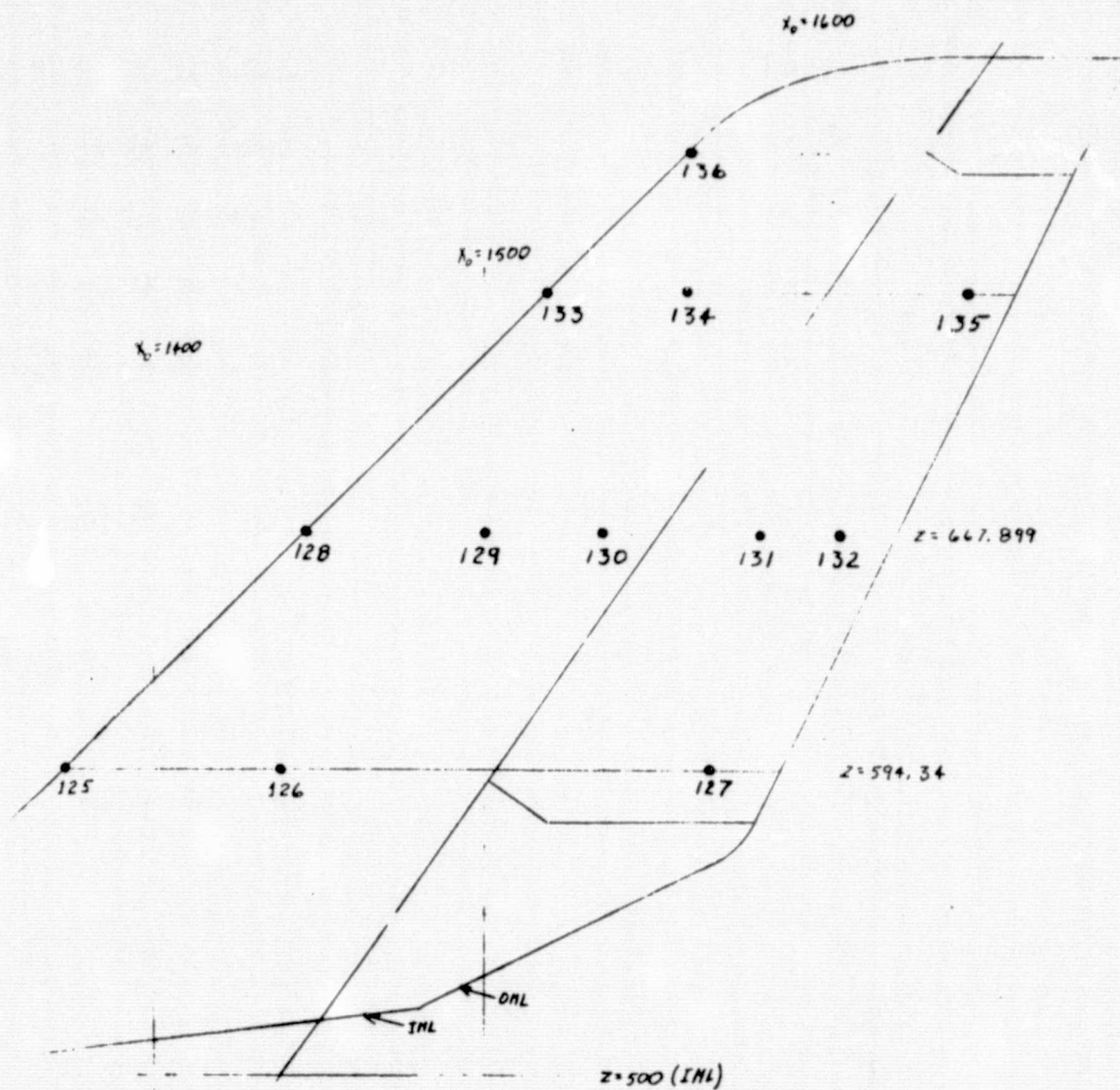
111

BOTTOM SURFACE

LOOKING AFT

\*NOT TO SCALE

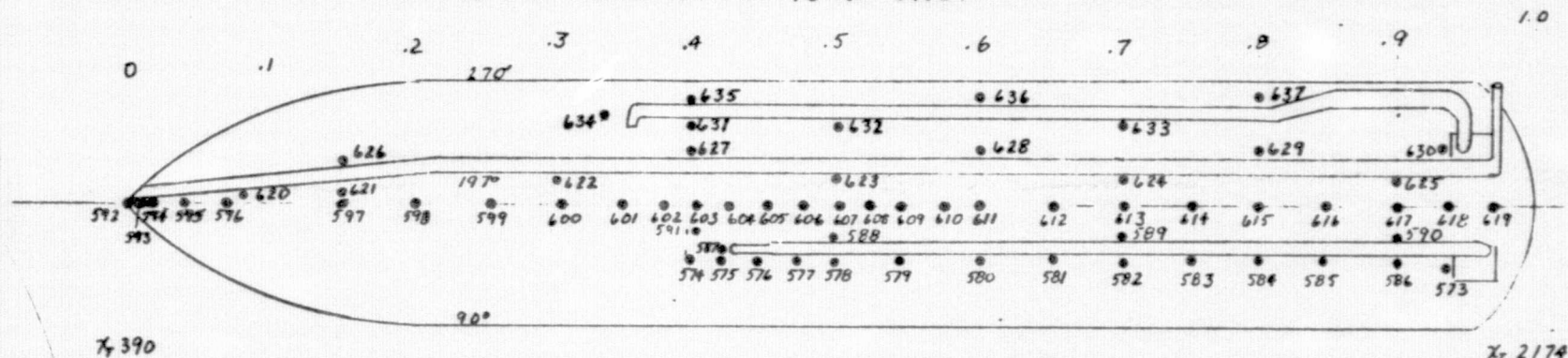
e. Left Wing Leading Edge  
Figure 2. - Continued.



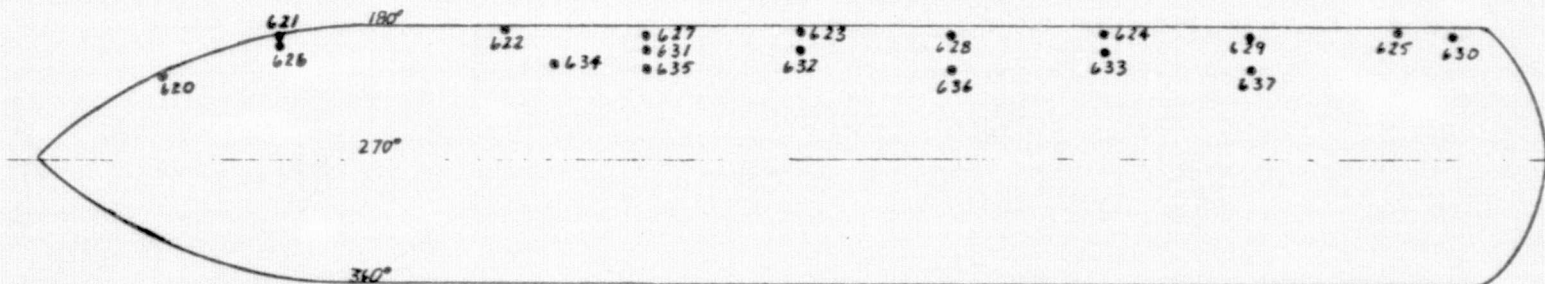
f. 26-OTS Vertical Tail  
Figure 2. - Continued.



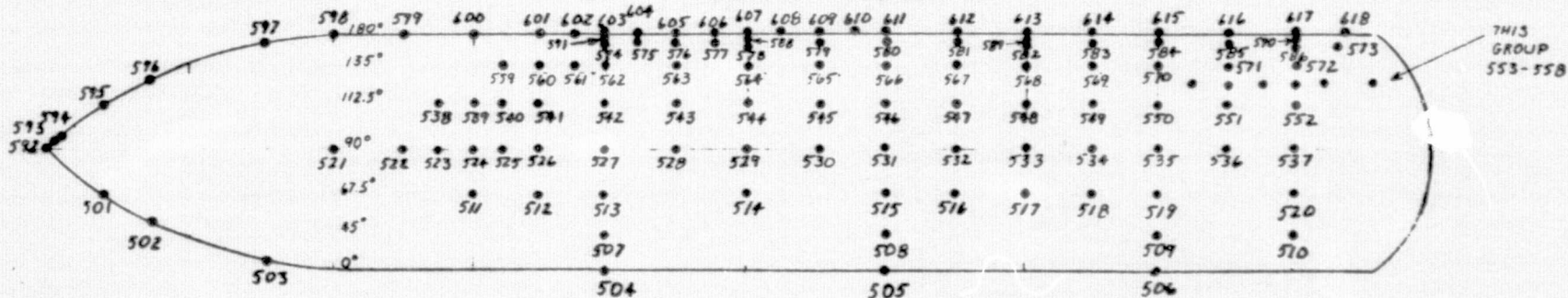
# TOP VIEW ~ AROUND PLUMBING ONLY



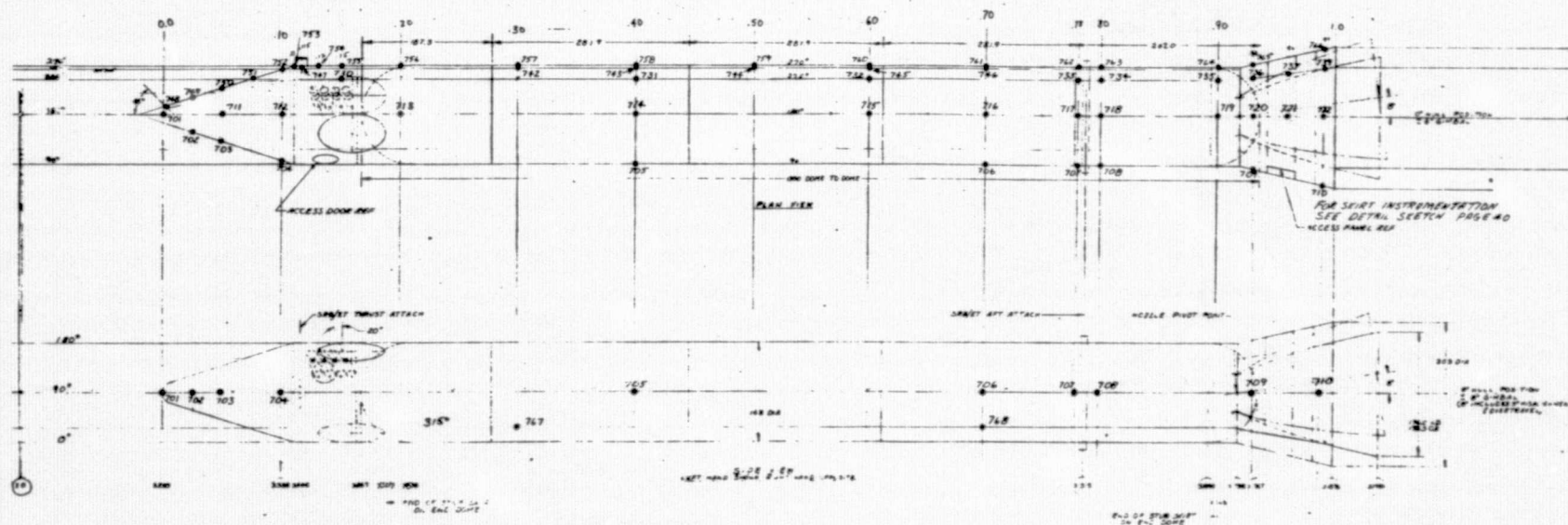
## RIGHT HAND VIEW



## LEFT HAND VIEW

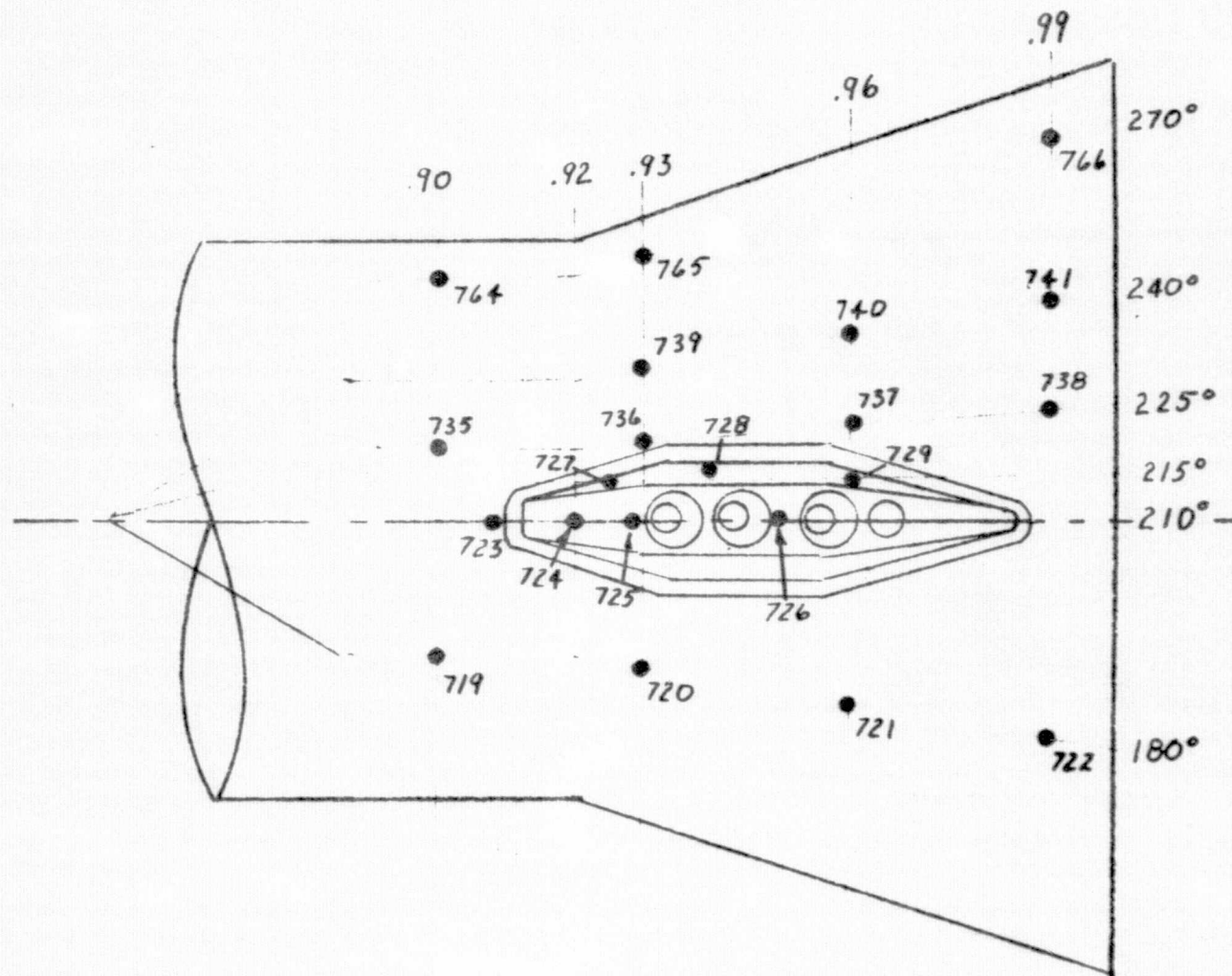


g. 26-OTS ET Pressure Tap Locations  
Figure 2. - Continued.

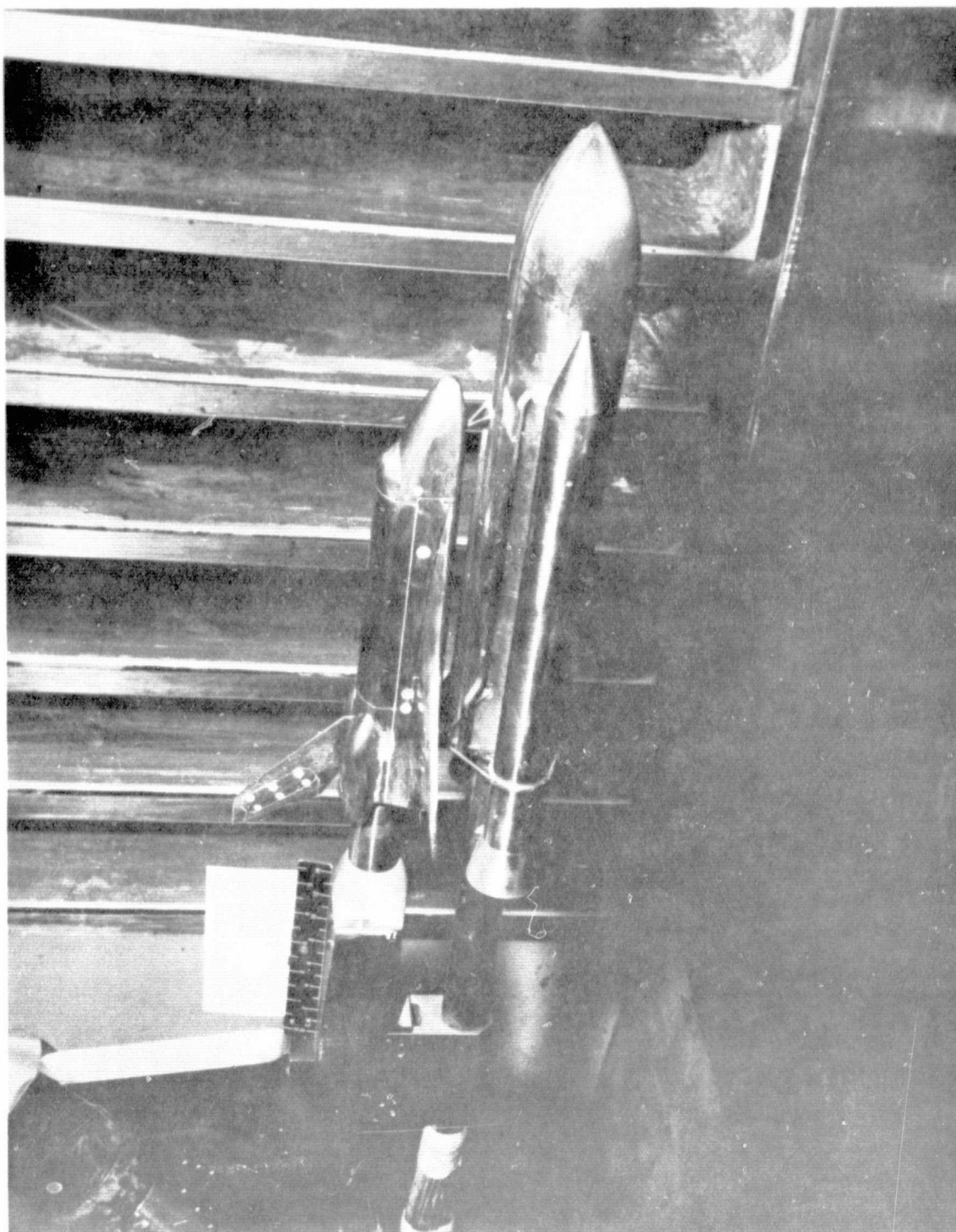


h. 26-OTS SRB Pressure Tap Locations  
Figure 2. - Continued.



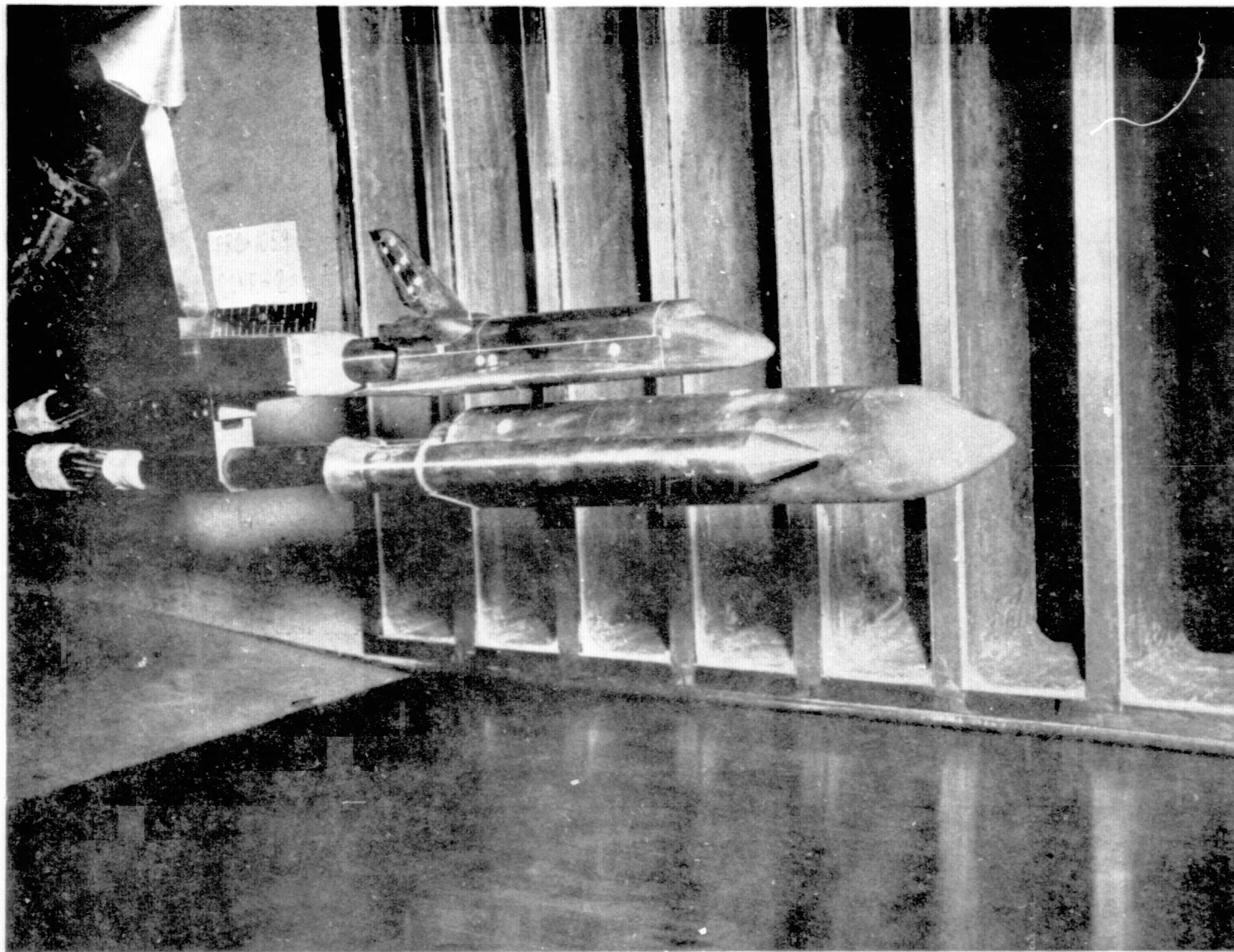


i. 26-OTS SRB Skirt Detail  
Figure 2. - Concluded.



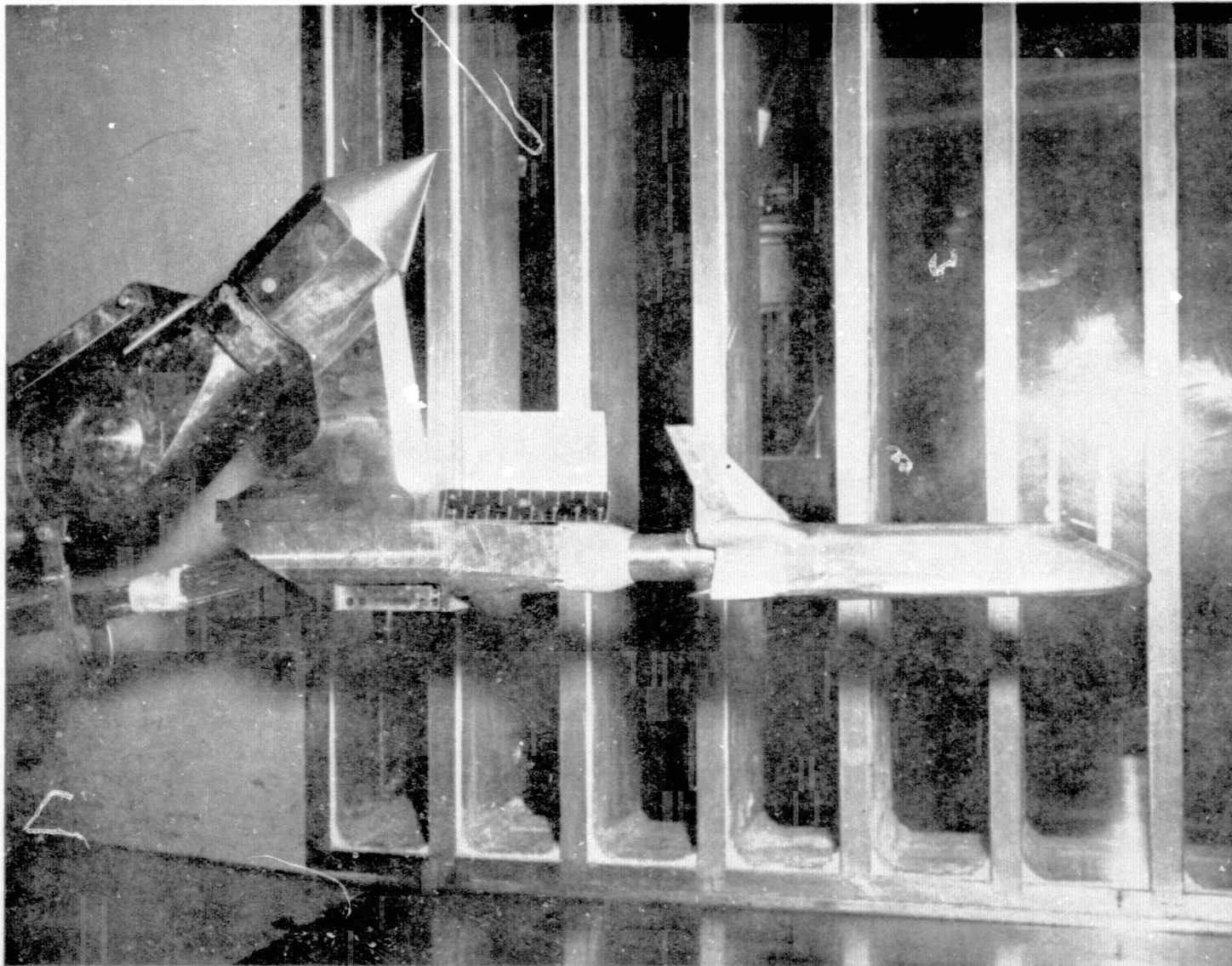
a. Integrated Vehicle,  $0_1 + T_{15} + S_8 N_{16}$   
Figure 3. - Model photographs.

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b. Integrated Vehicle,  $O_1 + T_{22} + S_8 N_{16}$

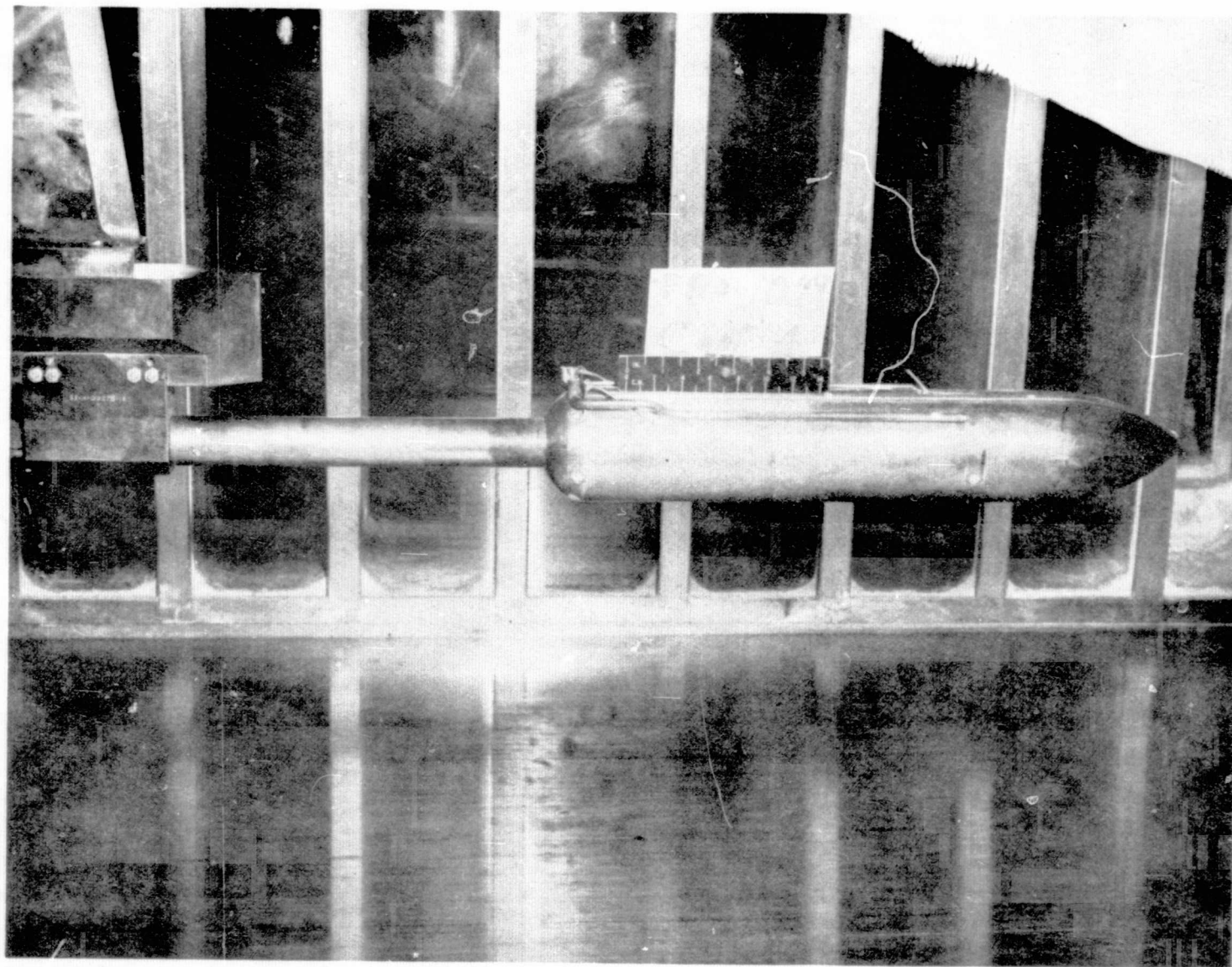
Figure 3. - Continued.



c. Orbiter, O<sub>1</sub>

Figure 3. - Continued.



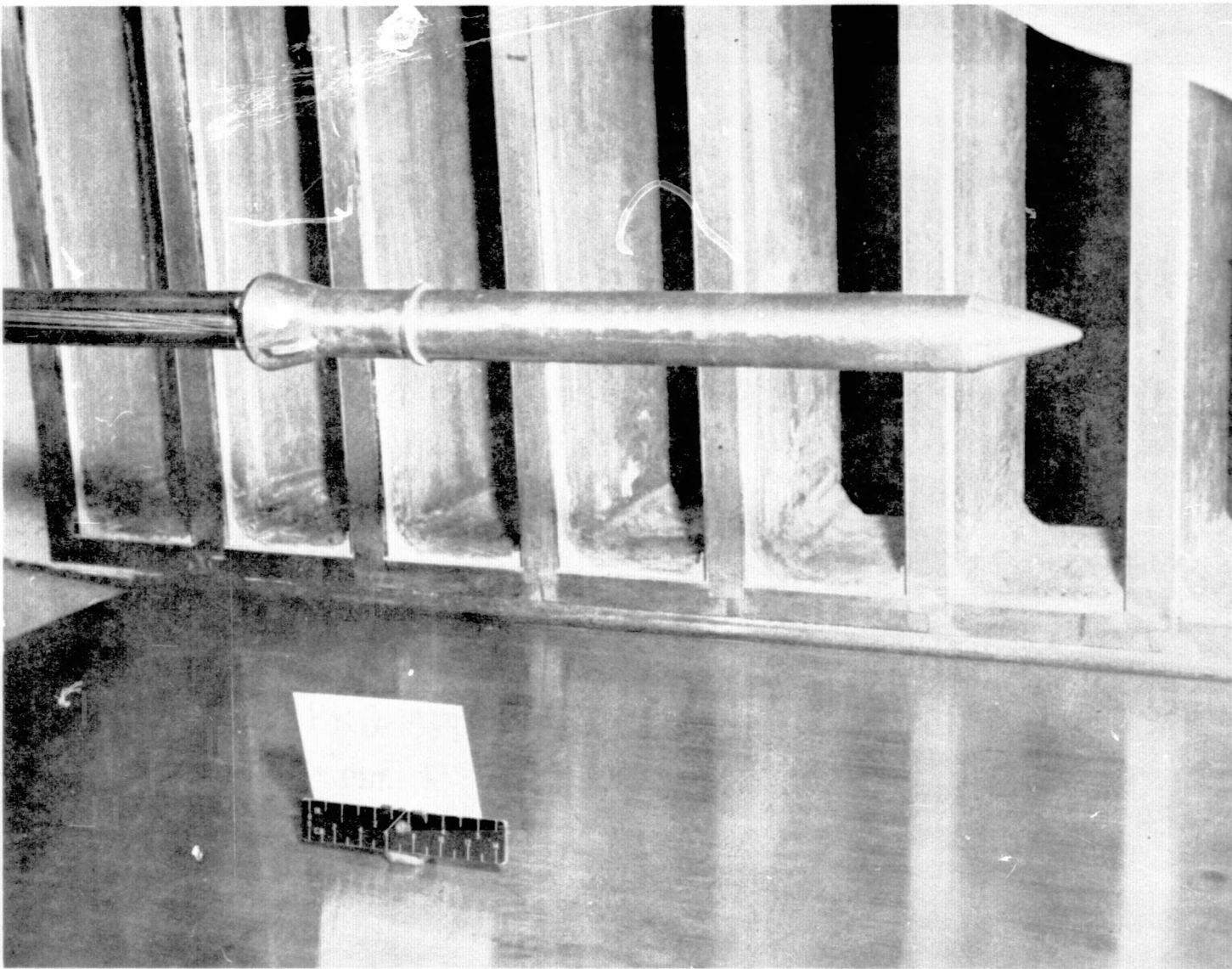


d. External Tank, T<sub>15</sub>  
Figure 3. - Continued.

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e. Solid Rocket Booster, S<sub>8</sub>

Figure 3. - Concluded.

APPENDIX  
TABULATED SOURCE DATA

Tabulations of plotted data are available on request from  
Data Management Services.

UPWT 1059 (IH4) 01-T15-S3N16 ORBITER FUSELAGE

(MQ3BAA) ( 15 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 1.200 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = .48030 Q(PSI) = 1.8721 RN/L = 1.2000 CPSTG = 1.7063

## SECTION ( 1 ) ORBITER FUSELAGE

## DEPENDENT VARIABLE P.

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	3.4308	2.1627	1.3366	1.5039		1.2717	1.2132	3.0219			.4261				
10.000								1.2894							
20.000								.8906							
24.500								.9105							
39.000								.8756							
163.000														1.6771	
174.000															
180.000	3.4308				1.1879			1.0518	1.0656	1.1660	2.3223	2.4562	2.3821		2.1597
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	.6142	.5943	.4487	.3855	.5175		1.35.6				.1876		.1265	.1325	
23.000		.5260													
24.000	.5893														
31.500	.5959														
33.100		.4960													
35.000	.5643														
40.000	.5260	.4628													
45.000		.4411													
50.000	.7191														
51.600															
57.000		.4529												.4955	
60.900		.4357													
65.000		.4246													
68.000														.4136	
69.000		.4123													
79.300					.3723										
95.500					.3675		.4733								
95.700		.4701													
96.300	.7605														
103.000					.3854										
105.000															.2285
112.600					.3978										
117.500												.4336		.4240	
120.800									.7903						
127.900						1.0628									
129.500								1.1438							

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DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-SIIN16 ORBITER FUSELAGE

(MQ3BAA)

MACH 2.360 ALPHA ( 1 ) = .000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PI.

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
130.000									.9694	.5794		.5176			
135.000		.2877			.4288										
139.600								.9965							
144.000												.6242			
155.000	.9376														
180.000	.6555	.3658			.4479										

X/LB 1.0250 1.0500

PHI

.000 .1882 .2523

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = .48020 Q(PSI) = 1.8721 RN/L = 1.2000 CPSTG = 1.7063

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PI

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	3.3376	2.2692	1.4175	1.3714		.8380	.8518	2.4653		.4889					
10.000								.9878							
20.000								.6918							
24.500								.7300							
39.000								.7766							
163.000														1.5061	
174.000															
180.000	3.3376				1.0157			.8832	.9159	.9826	1.8794	2.1812	2.0615		1.8833

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	.5721	.4956	.3913	.4846	.6099		1.3713				.1954		.1359	.1449	
23.000		.4490													
24.000	.5355														
31.500	.5122														
33.100		.4340													
35.000	.4939														
40.000	.4706	.4108													
45.000		.4024													
50.000	.6136														
51.600													.4327		
57.000		.3687													
60.900		.3476													
55.000		.3368													
68.000														.3416	

PHI

UPWT 1059 (1H4) 01-T15-S1N16 ORBITER FUSELAGE

(MQ3BAA)

MACH ( 1 ) = 2.360      ALPHA ( 2 ) = 5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

[illegible]

X/LB	1.0250	1.0500
------	--------	--------

PHI

.000 .2176 .2657

MACH ( 2 ) = 2.950    ALPHA ( 1 ) = .000    PINF = .26525    Q(PSI) = 1.6156    RN/L = 1.2100    CPSTG = 1.7529

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

[illegible]



UPWT 1059 (1H4) 01-T15-SR 116 ORBITER FUSELAGE

(MG3RAA)

MACH (2) = 2.950    ALPHA (2) = 5.000    PINF = .26525    Q(PS1) = 1.6156    RN/L = 1.2100    CPSTG = 1.7529

## SECTION (1) ORBITER FUSELAGE

## DEPENDENT VARIABLE PL

[illegible]

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-S8# 16 ORBITER FUSELAGE

(MQ3BAA)

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB 1.0250 1.0500

PHI

.000 .0909 .1234

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .13175 Q(PSI) = 1.2629 RN/L = 1.2000 CPSTG = 1.7839

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB .0000 .0050 .0200 .0400 .0500 .0600 .0800 .1000 .1250 .1500 .1600 .1650 .1700 .1750 .1800

PHI

.000	2.4535	1.1888	.6668	.4970		.5635	.5143	2.1167		.1795				
10.000								.4238						
20.000								.4092						
24.500								.3914						
39.000								.2151						
163.000													.5887	
174.000														
180.000	2.4535				.7908		.6573	.7387	1.6609	1.9666	1.2083	1.8898		.4897

X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8000 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI

.000	.2555	.1876	.2187	.2403	.2033		.5487			.0738		.0446	.0524	
23.000		.6939												
24.000	.1989													
31.500	.2054													
33.100		.2200												
35.000	.2248													
40.000	.2782	.2151												
45.000		.2062												
50.000	.2944													
51.600												.1222		
57.000		.2056												
60.900		.1833												
65.000		.1750												
68.000												.3315		
69.000		.1451												
79.300					.1389									
95.500					.1632		.1526							
95.700		.1104												
96.300	.2232													
103.000					.1590									
105.000														.1747
112.600					.1562									
117.500											.1639		.0493	
120.800								.1646						

(MQ3BAA)

DEPENDENT VARIABLE PL

.000

DEPENDENT VARIABLE PL

57,000

60.900

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-S8V16 ORBITER FUSELAGE

(MQ3BAA)

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
65.000		.1513													
68.000													.0822		
69.000		.1513													
79.300					.0995										
95.500					.1023		.0981								
95.700		.1265													
96.300	.2467														
103.000					.1050										
105.000															.0422
112.600					.1030										
117.500												.1147		.1147	
120.800									.2944						
127.900						.6444									
129.500							.5426								
130.000								.4065	.2019			.1196			
135.000		.0726			.1044										
139.600								.3241							
144.000												.1721			
155.000	.4464														
180.000	.3709	.1191			.1056										

X/LB 1.0250 1.0500

PHI  
.000 .0530 .0613

MACH ( 4 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .66200-01 Q(PSI) = .98085 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	2.0294	.9724	.5290	.3614		.3981	.4205	1.4493		.1299					
10.000								.4010							
20.000								.2873							
24.500								.2792							
39.000								.2597							
163.000														.9679	
174.000															
180.000	2.0294				.6086			.4925	.4952	.5587	1.2956	1.5544	1.7326		1.6234

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UPWT 1059 (1H4) 01-T15-SB 116 ORBITER FUSELAGE

(MQ3BAA)

MACH ( 4 ) = 4.600      ALPHA ( 1 ) = -5.000

## SECTION (1) ORBITER FUSELAGE

## DEPENDENT VARIABLE PL

[illegible]



TABULATED SOURCE DATA - 1H4

UPWT 1059 (IH4) 01-T15-SB: 16 ORBITER FUSELAGE

(MQ3BAA)

MACH ( 4 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .6620(-01 Q(PSI) = .98085 RN/L = 1.2000 CPSTG = 1.8033

SECTION 1. ORBITER FUSELAGE

DEPENDENT VARIABLE PL

[illegible]

UPWT 1059 (IH4) -T15-S8N16 ORBITER FUSELAGE

(MQ3BAA)

MACH ( 4 ) = 4.600 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB 1.0250 1.0500

PHI  
.000 .0181 .0181

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-S8N16 ORB. UPPER WING

(MQ3UAA) ( 15 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 1.200 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = .48020 Q(PSt) = 1.8721 RN/L = 1.2000 CPSTG = 1.7063

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.7321		
.200	.3415	.3543	.5700
.600	.2097	.2212	
.800		.2188	
.900		.9097	.2139
.950		.2479	

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = .48020 Q(PSt) = 1.8721 RN/L = 1.2000 CPSTG = 1.7063

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.6658		
.200	.2563	.2964	.4607
.600	.1497	.1567	
.800		.1561	
.900		.9085	.1691
.950		.2056	

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000 PINF = .26525 Q(PSt) = 1.6156 RN/L = 1.2100 CPSTG = 1.7529

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.4893		
.200	.1999	.2450	.4147
.600	.1009	.1074	
.800		.1074	
.900		.4360	.1590
.950		.1513	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-S8N 6 ORB. UPPER WING

(MQ3UAA)

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = .26525 Q(P51) = 1.6156 RN/L = 1.2100 CPSTG = 1.7529

SECTION ( 2 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.4340		
.200	.1541	.1979	.3158
.600	.0741	.0835	
.800		.0835	
.900		.4491	.1375
.950		.1227	

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .13175 Q(P51) = 1.2629 RN/L = 1.2000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.1458		
.200	.0711	.0862	.1512
.600	.1822	.0862	
.800		.2150	
.900		.1269	1.3015
.950		.3529	

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .13175 Q(P51) = 1.2629 RN/L = 1.2000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.2706		
.200	.1074	.1479	.2599
.600	.0481	.0581	
.800		.0587	
.900		.2083	.1250
.950		.1091	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-S81116 ORB. UPPER WING

(MQ3UAA)

MACH ( 4 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .6620(-01 Q(PSI) = .98085 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.2257		
.200	.0873	.1248	.2454
.600	.0340	.0457	
.800		.0539	
.900		.1318	.1253
.950		.0914	

MACH ( 4 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .6620(-01 Q(PSI) = .98085 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.1702		
.200	.0485	.0763	.1734
.600	.0166	.0284	
.800		.0385	
.900		.1231	.0964
.950		.0757	

UPWT 1059 (1H4) 01-T15-SB116 ORB. LOWER WING

(MQ3LAA) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2630.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 1.200 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = .48020 Q(PSI) = 1.8721 RN/L = 1.2000 CPSTG = 1.7063

## SECTION ( 1 ) ORB. LOWER WING

## DEPENDENT VARIABLE PL

2Y/BW .2500 .3011 .3480 .4000 .5000 .6000 .7500 .8500 .9500 .9980

## X/CW

.000					1.4185	1.5260	.2963
.001	.3962	.4944	1.1153	.6109	1.4236	.5910	
.002				.5094		.5550	
.003				1.7053		1.6438	
.004				.7964		.7391	
.005				.5427		.5520	
.025			.6708	.5993	.5993		
.045			.6725				
.100				.4943		.5843	.6042
.153	.4112						
.177			.5295				
.200			.4605				
.299	.5130						
.302			.5775		.6346		
.428				.8851			
.444	.4920						
.487			1.1359				
.559		1.2115					
.600				1.2173			
.700				1.1368			
.736	1.3089						
.800				.7522			
.850				.5676			
.900			.3588	.4230	.6366	.4838	

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = .48020 Q(PSI) = 1.8721 RN/L = 1.2000 CPSTG = 1.7063

## SECTION ( 1 ) ORB. LOWER WING

## DEPENDENT VARIABLE PL

2Y/BW .2500 .3011 .3480 .4000 .5000 .6000 .7500 .8500 .9500 .9980

## X/CW

.000				1.6582	1.6547	.1779
.001	.3891	.5554	1.4383	.8198	1.6684	.8606
.002				.6735		.8132
.003				1.7725		1.5387
.004				1.0403		1.0374
.005				.7367		.8193

DATE 20 APR 76

TABULATED SOURCE DATA - 1H4

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UPWT 1059 (1H4) 01-T15-S8N16 ORB. LOWER WING

(MQ3LAA)

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000

SECTION ( 1 ) ORB. LOWER WING		DEPENDENT VARIABLE PL								
2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.025				.7417	.7833		.8198			
.045				.7483						
.100						.6537		.8448	.8681	
.153	.4124									
.177					.7062					
.200				.5916						
.299	.5182									
.302				.8132			.9065			
.428						1.2442				
.444	.5809									
.487					1.4463					
.559				1.3940						
.600						1.7008				
.700						1.2619				
.736	1.3721									
.800						.8002				
.850						.6012				
.900				.2681		.4509	.7244		.9293	

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000 PINF = .26525 Q(PSI) = 1.6156 RN/L = 1.2100 CPSTG = 1.7529

SECTION ( 1 ) ORB. LOWER WING		DEPENDENT VARIABLE PL								
2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						1.1516		1.2181		.1983
.001		.2403	.2370		.8030	.4580	1.1311	.4341		
.002						.3531		.3903		
.003						1.3956		1.3376		
.004						.6357		.5450		
.005						.3918		.3933		
.025				.3177	.3709		.4273			
.045				.3290						
.100						.3428		.4031	.4176	
.153	.2499									
.177					.3192					
.200				.3040						
.299	.2330									
.302				.3555			.3661			
.428						.4175				
.444	.2541									
.487					.5355					
.559				.7594						
.600						.5809				

UPWT 1059 (IH4) 01-T15-SBN 6 ORB. LOWER WING

(MQ3LAA)

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.700						.7445				
.736	.8259									
.800						.6409				
.850						.4689				
.900			.2211			.3308	.5022		.2755	

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = .26525 Q(PSI) = 1.6156 RN/L = 1.2100 CPSTG = 1.7529

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						1.2864		1.3513		.1435
.001		.2145	.2567		1.0287	.5978	1.3393	.6337		
.002						.4695		.5605		
.003						1.3803		1.2659		
.004						.7833		.8106		
.005						.5235		.5754		
.025				.4543	.5218		.6265			
.045				.4610						
.100						.4407		.6062	.6113	
.153	.2313									
.177					.3677					
.200				.2914						
.299	.2406									
.302				.3826			.4932			
.428						.5127				
.444	.2705									
.487					.6233					
.559				.7832						
.600						.9700				
.700						.9647				
.736	.7936									
.800						.6626				
.850						.5055				
.900			.1492			.3755	.6162		.3508	



TABULATED SOURCE DATA - IH4

UPWT 1059 (1H4) 01-T15-SBN'6 ORB. LOWER WING

(MQ3LAA)

MACH (3) = 3.700    ALPHA (1) = -5.000    PINF = .13175    Q(PSI) = 1.2629    RN/L = 1.2000    CPSTG = 1.7839

SECTION 1 : ORS. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				.2135		.2218		.1892
.001	.1520	.4674		.1553	.8995	.1818		
.002				1.0062		1.1018		
.003				.3238		.2944		
.004				.1698		.1848		
.005				.7245		.3480		
.025			.1747	.1833				
.045			.1648		.2264			
.100								
.153	.1617			.2495		.2038	.1111	
.177								
.200			.2033	.2757				
.299	.1494							
.302			.4236			.1518		
.428					.2388			
.444	.5330							
.487				.1431				
.559			.0916					
.600				.2809				
.700				.3053				
.736	.1714							
.800				.2434				
.850				.1791				
.900			.1747	.2038	.1860		.1310	

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .13175 Q(PSI) = 1.2629 RN/L = 1.2000 CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				.7042		.9150		.1087
.001	.1460	.1266	.4819	.2337	.7780	.2914		
.002				.1688		.2391		
.003				.9202		1.0062		
.004				.3460		.3781		
.005				.1947		.2511		
.025		.1736	.1898		.2596			
.045		.1785						
.100				.1539		.2434	.2645	
.153	.1412							
.177			.1509					
.200		.1240						
.299	.1345							

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 420

UPWT 1059 (IH4) 01-T15-SBN15 ORB. LOWER WING

(M03LAA)

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.302

.428

.444

.487

.559

.600

.700

.736

.800

.850

.900

.1599

.2361

.2122

.2481

.3602

.2795

.2803

.3660

.3095

.0922

.2315

.2012

.1140

MACH ( 4 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .66200-01 Q(PSI) = .98085 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000

.001

.002

.003

.004

.005

.025

.045

.100

.153

.177

.200

.299

.302

.428

.444

.487

.559

.600

.700

.736

.800

.850

.900

.1007

.0974

.3799

.5674

.1640

.1088

.7734

.2689

.1299

.1326

.1071

.1315

.1656

.1055

.0897

.1347

.1429

.1104

.1128

.0945

.0914

.1082

.1493

.1372

.0884

.1356

.2301

.1280

.1034

.3307

.1227

.1288

.0539

.1155

.0786

.0665

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 421

UPWT 1059 (IH4) 01-T15-S8N13 ORB. LOWER WING

(MQ3LAA)

MACH ( 4 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .66200-.J1 Q(PSI) = .98085 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) ORB. LOWER WING		DEPENDENT VARIABLE PL									
2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980	
X/CW											
.000						.5457		.7363		.0732	
.001		.0846	.0764		.3594	.1707	.6191	.2182			
.002						.1122		.1584			
.003						.6786		.7678			
.004						.2693		.3057			
.005						.1317		.1733			
.025				.1024	.1350		.1870				
.045				.1024							
.100						.0898		.1756	.1821		
.153	.0894										
.177					.0732						
.200				.0657							
.299	.0717										
.302				.0807			.1180				
.428						.1270					
.444	.0717										
.487					.1300						
.559				.1733							
.600						.1315					
.700						.1010					
.736	.2361										
.800						.1258					
.850						.1354					
.900				.0466		.1264	.0937		.0586		

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UPWT 1059 (IH4) 01-T15-SEN16 ORB. VERT. TAIL

(MQ3VAA) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 1.200 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = .48020 Q(PSI) = 1.8721 RN/L = 1.2000 CPSTG = 1.7063

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.7411	1.6984	1.4236	1.6933
.300	.9022	.8320	.7631	
.500		.7758		
.700		.3492		
.900	.2947	.2983	.3570	

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = .48020 Q(PSI) = 1.8721 RN/L = 1.2000 CPSTG = 1.7063

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.5336	1.4278	1.2178	1.4175
.300	.7960	.7425	.6992	
.500		.6811		
.700		.3036		
.900	.2495	.2663	.3162	

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000 PINF = .26525 Q(PSI) = 1.6156 RN/L = 1.2100 CPSTG = 1.7529

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.4281	1.3427	1.1823	1.4212
.300	.5791	.4749	.4210	
.500		.4865		
.700		.2393		
.900	.1684	.2023	.2187	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 423

UPWT 1059 (IH4) 01-T15-S8416 ORB. VERT. TAIL

(MQ3VAA)

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = .26525 Q(PSI) = 1.6156 RN/L = 1.2100 CPSTG = 1.7529

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.1874	1.1260	.9787	1.1345
.300	.4670	.3833	.3328	
.500		.3924		
.700		.1980		
.900	.1378	.1649	.1751	

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .13173 Q(PSI) = 1.2629 RN/L = 1.2000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	.3547	.2934	.2583	.7283
.300	.1357	.2976	.1315	
.500		.1779		
.700		.1643		
.900	1.0284	.9713	1.2554	

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .13173 Q(PSI) = 1.2629 RN/L = 1.2000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.0881	.9079	.8008	.9448
.300	.3065	.2517	.2226	
.500		.2523		
.700		.1327		
.900	.1095	.1178	.1101	

MACH ( 4 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .6620)-01 Q(PSI) = .98085 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	.7787	.7106	.7315	.9829
.300	.1687	.1457	.1397	
.500		.1433		
.700		.0695		
.900	.0647	.0641	.0556	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 424

UPWT 1059 (IH4) 01-T15-SE 116 ORB. VERT. TAIL

(MQ3VAA)

MACH ( ) = 4.600 ALPHA ( 2 ) = .000 PINF = .66230-01 Q(PSI) = .98085 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	.7748	.6926	.4880	.6751
.300	.1342	.1197	.1046	
.500		.1149		
.700		.0520		
.900	.0484	.0459	.0441	

DATE 20 APR 76

TABULATED SOURCE DATA - 1H4

PAGE 425

UPWT 1059 (IH4) 01-T15-SB1116 EXTERNAL TANK

(MQ3TAA) ( 15 APR 76 )

### REFERENCE DATA

```

SREF = 2690.0000 SQ.FT.   XMRP = .0000 INCHES
LREF = 1290.3000 INCHES   YMRP = .0000 INCHES
BREF = 1290.3000 INCHES   ZMRP = .0000 INCHES
SCALE = .0100

```

### PARAMETRIC DATA

RN/L = 1.200 BETA = .000

MACH (1) = 2.360    ALPHA (1) = .000    PINF = .48020    Q(PS1) = 1.8721    RN/L = 1.2000    CPSTG = 1.7063

## SECTION ( 1 ) EXTERNAL TANK

## DEPENDENT VARIABLE PL

[illegible]

X/LT	.4250	.4500	.4750	.5000	.5250	.5500	.5750	.6000	.6500	.7000	.7500	.8000	.8500	.8750	.9000
THETA															
.000								.4248				.4704			
45.000								.4752				.4710			.6472
67.500				.3106				.5042	.4723	.4596	.4613	.4590			.4820
90.000		.2081		.4376		.5033		.4288		.4329	.4160	.4091	.5292		.7961
112.500		.2524		.3962		.6211		.6139	.5710	.5495	.5100	.4799	.7566		1.0742
123.000													.7363	.9191	1.0730
135.000		.6696		.5431		.4284		.5019	.5419	.5019	.4845	.4973	.9412		1.0412
157.500	.8545	.8584	.4933	.5535		.4933		.5767	.4431	.4563	.4847	.5773	.8540		1.2048
161.000	.8176														
166.000				.5496						.4330					
180.000	1.4218	.9108	.6098	.4447	.5438	.6059	.5535	.5288	.4525	.4305	.4576	.5842	.9996		1.2916
197.000				.5496						.4141					1.3341
210.000								.5155				.4966			
220.000				.6622						.5338					
232.000								.5237				.5061			

X/LT	.9250	.9350	.9370	.9750
------	-------	-------	-------	-------

THETA  
123.000 1.2206

UPWT 1059 (IH4) 01-T15-S8N16 EXTERNAL TANK

(MQ3TAA)

MACH (1) = 2.360 ALPHA (1) = .000

SECTION (1) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

151.000 1.3007

180.000 1.4130 .2225

210.000 1.7202

MACH (1) = 2.360 ALPHA (2) = 5.000 PINF = .48020 Q(PST) = 1.8721 RN/L = 1.2000 CPSTG = 1.7063

SECTION (1) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000 2.0582 1.5006 .8207 .6675

45.000 .7388

67.500 .5232 .5021 .3638

90.000 .4054 .4555 .4420 1.4005 2.4343 .3262 .1924

112.500 .4525 .4240 1.0013 .2165 .1278

135.000 .4525 .4721 .4736 .3819

157.500 .6272

167.000 .6776

180.000 3.6567 2.7010 2.5764 1.4822 1.0635 .5670 .4364 .1559 .4123 .4782 .5750 .8014

197.000 1.0819 .5821 .4201

210.000 .5832

220.000 .7860

225.000 .3930

232.000 .4917 .3620

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000 .5020 .5014

45.000 .4872 .4979 .6169

67.500 .4164 .5072 .8264

90.000 .1959 .2766 .5352 .5612 .5716 .5507 .5252 .5072 .8502 1.0158

112.500 .1684 .3037 .5142 .5635 .5362 .5014 .5008 .9117 1.1458

123.000 .5681 .5455 .5153 .4950 .5234 .8055 1.0510 1.1725

135.000 .4540 .4420 .4240 .5194 .5014 .4793 .5200 .5815 1.0306 1.1611

157.500 .7395 .6853 .4588 .4762 .4569 .4058 .4154 .4619 .5275 .7295 .9314 1.2249

161.000 .6756

166.000 .5595

180.000 1.1759 .7763 .5769 .5188 .5575 .5246 .4704 .4268 .3708 .4441 .5708 .7097 1.0519 1.3057

197.000 .5266 .4173 .6963 1.3536

210.000 .4632

220.000 .5866 .5020 .6683

232.000 .5390



DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 427

UPWT 1059 (IH4) 01-T15-S6N16 EXTERNAL TANK

(MQ3TAA)

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000

SECTION ( 1 ) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA  
123.000 1.1986  
151.000 1.3026  
180.000 1.3627 .2000  
210.000 1.7488

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000 PINF = .26525 Q(P5I) = 1.6156 RN/L = 1.2100 CPSTG = 1.7529

SECTION ( 1 ) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA  
.000 1.3244 .9015 .4147 .3180  
45.000 .2931  
67.500 .1392  
90.000 .2237 .2560 .2664 .7739 1.7881 .2664 .1437  
112.500 .2739 .2814 .3293 .2500 .1452  
135.000 .2769 .2290 .2545 .3143  
157.500 .4222  
167.000 .4339  
180.000 3.0443 2.2934 2.2797 1.2839 .8997 .4320 .2522 .2847 .2692 .3041 .3622 .4319  
197.000 .9062 .4482  
210.000 .4436 .3990  
220.000 .3099  
225.000 .3332  
232.000 .4358

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA  
.000 .2284 .2296  
45.000 .2064 .2349 .2853  
67.500 .2824 .2586 .2459 .2459 .2447 .4534  
90.000 .1362 .1557 .2410 .2575 .2383 .2308 .2256 .2528 .4905  
112.500 .1482 .1512 .2634 .3224 .3357 .3433 .3282 .3108 .3717 .6175  
123.000 .3885 .5352 .6280  
135.000 .2979 .3937 .2919 .2702 .2731 .2917 .2975 .2806 .5561 .6141  
157.500 .4610 .4997 .3390 .4029 .3002 .2886 .2554 .2281 .2051 .2758 .4727 .6982  
161.000 .4513  
166.000 .3680  
180.000 .9084 .7012 .4358 .3273 .2886 .3486 .3583 .3306 .2962 .2421 .1937 .2548 .5332 .7479  
197.000 .4029 .2924 .2370 .2312 .7695  
210.000 .4494 .3058  
220.000 .2166 .2561  
232.000

UPWT 1059 (IH4) 01-T15-SBN 6 EXTERNAL TANK

(MQ3TAA)

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000 .7637

151.000 .8014

180.000 .9243 .0936

210.000 1.0773

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = .26525 Q(P5I) = 1.6156 RN/L = 1.2100 CPSTG = 1.7529

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000 1.5571 1.1017 .5416 .3934

45.000 .2738

67.500 .2349

90.000 .2258 .2515 .2575 .3192 .3554 .1491

112.500 .2455 .2439 .5240 .1641 .1039

135.000 .2470 .2605 .3027 .2590

157.500 .3163

167.000 .3513

180.000 3.0307 2.0732 2.0664 1.0483 .7361 .3547 .2345 .2601 .2387 .2465 .2930 .3920

197.000 .7464 .3709 .2445

210.000 .3680

220.000 .3435

225.000 .2795 .1921

232.000 .3086

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000 .2874 .2637

45.000 .2690 .2803 .2738

67.500 .2229 .2897 .2961 .3170 .3187 .3083 .4151

90.000 .1190 .2595 .3338 .3146 .2937 .3617 .6769

112.500 .1069 .1370 .1852 .1388 .2961 .3112 .3146 .3036 .2932 .4365 .6786

123.000 .3709 .5724 .6792

135.000 .1958 .2199 .2138 .2636 .2746 .2699 .2682 .2891 .5910 .6542

157.500 .3610 .3823 .2853 .3183 .2659 .2439 .2030 .2036 .2126 .3509 .4981 .6755

161.000 .3454

166.000 .3222

180.000 .8015 .5667 .3299 .2736 .3241 .3396 .3202 .2670 .2299 .2017 .1889 .3451 .5564 .7306

197.000 .3338 .1953 .2632 .7824

210.000 .2587

220.000 .3416 .2847 .2932

232.000 .2286

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 429

UPWT 1059 (IH4) 01-T15-S8N16 EXTERNAL TANK

(MQ3TAA)

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000

SECTION ( 1 ) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA				
123.000	.7146			
151.000		.7306		
180.000			.7267	.0800
210.000			1.1380	

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .13175 Q(PSI) = 1.2629 RN/L = 1.2000 CPSTG = 1.7839

SECTION ( 1 ) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA															
.000				.4538	.1877	.1482									.1093
45.000															.0723
67.500															.0540
90.000							.1229	.1334	.3882	.1019			.0585		.0794
112.500									.1694	.1544	.1799		.0944		.1214
135.000											.2443		.1544		.2938
157.500											.1949		.1574	.1754	.3093
167.000															2.3306
180.000	1.8681	1.7930	1.0939	.7591	.3448	.1935	.1691	.1940		.1863			.2094	.2651	.7165
197.000					.3599	.1902				.2382					
210.000						.2958									.2063
220.000															6.3648
225.000															
232.000												.4342			.1683

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA															
.000															
45.000								.1245			.0929				
67.500								.0875			.1403				.3073
90.000				.1022				.0728	.0884	.0884	.1866				.1336
112.500		.0764		.0809		.1294		.1658	.1438	.1196	.1201	.2253			.1544
123.000		.1259		.1634		.2033		.2253	.2322	.2108	.2004	.1814	.3125		.1583
135.000													.2079	.3720	.4494
157.500	.3189	.3253		.2233		.1768		.1716	.1906	.2033	.1848	.2882	.3368		.5048
161.000	.2094		.2382	.2171		.2798		.1789	.1689	.1483	.1533	.2287	.3989		.2958
166.000															
180.000	.5840	.2324	.2305	.1957		.1959	.2056	.1851	.2082	.1857	.1595	.1377	.2755	.4705	.4892
197.000				.1957							.4905				.3506
210.000									.1602				.8108		
220.000				.2107											
232.000								.1633			.4015		2.8153		

ORIGINAL PAGE IS  
OF POOR QUALITY

UPWT 1059 (IH4) 01-T15-S8N16 EXTERNAL TANK

(MQ3TAA)

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE: PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000 .1799

151.000 .4553

180.000 .0555 .7507

210.000 .2497

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .3175 Q(P51) = 1.2629 RN/L = 1.2000 CPSTG = 1.7839

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE: PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000 .9074 .5944 .2406 .1666

45.000 .1174

67.500 .0828

90.000 .0994

112.500 .0858

135.000 .1656

157.500 .4523

167.000 .1886

180.000 2.3374 1.6650 1.7589 .8935 .6037 .2592 1418 .1636 .1559 .1540 .1636 .2021

197.000 .6019 .2754 .1578

210.000 .2696

220.000 .2040

225.000 .2021

232.000 .3772

X/LT .4250 .4500 .4750 .5000 .5250 .5500 5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000 .1185 .1185

45.000 .0956 .1044 .1473

67.500 .1325 .1094 .1024 .1111 .1117 .2170

90.000 .0888 .1053 .1354 .1273 .1169 .1296 .2349

112.500 .0888 .1348 .1273 .1522 .1719 .1811 .1724 .3269

123.000 .1585 .2390 .3373

135.000 .1747 .1641 .1777 .1481 .1447 .1342 .1377 .1435 .2569 .3165

157.500 .2444 .2348 .2136 .1886 .1828 .1436 .1252 .1220 .1029 .1099 .1735 .3129

161.000 .2252

166.000 .1771

180.000 .5774 .4215 .2079 .1713 .1540 .1694 1675 .1411 .1525 .1341 .1087 .0947 .2110 .3857

197.000 .2040 .1341

210.000 .1493 .1087 .4092

220.000 5.8548 .1443

232.000 .0883 .1360

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T11-SBN16 EXTERNAL TANK

(MQ3TAA)

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = .000

SECTION ( 1 ) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA  
 123.000 .3877  
 151.000 .3845  
 180.000 .4753 .0330  
 210.000 .5815

MACH ( 4 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .66200-01 Q(P5I) = .98085 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA  
 .000 .5018 .3048 .1130 .0902  
 45.000 .0410  
 67.500 .0406  
 90.000 .0445 .0768 .0813 .2017 .8175 .1340 .0723  
 112.500 .0918 .0994 .0918 .1385 .0903  
 135.000 .1054 .1355 .1099 .1280  
 157.500 .3915  
 167.000 .1369  
 180.000 1.7478 1.3365 1.3740 .7666 .5287 .2251 .1198 .1061 .1176 .1157 .1157 .1196 .1446  
 197.000 .5185 .2366  
 210.000 .2280 .1601  
 220.000 .1369  
 225.000 .1967  
 232.000 .3124

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA  
 .000 .0527 .0884  
 45.000 .0422 .0433 .0439  
 67.500 .0822 .0492 .0428 .0526 .0486 .0833  
 90.000 .0557 .0557 .0632 .0781 .1122 .0984 .0798 .0775 .1342  
 112.500 .0783 .0798 .0753 .1412 .1250 .1342 .1250 .1296 .1128 .1880  
 123.000 .1082 .1232 .2106  
 135.000 .1566 .1686 .1400 .1111 .1047 .1024 .1174 .1117 .1695 .1996  
 157.500 .1659 .1639 .1157 .1080 .1157 .1245 .0961 .1038 .0935 .0942 .1219 .2489  
 161.000 .1504  
 166.000 .1350  
 180.000 .4609 .4204 .1639 .1524 .1138 .1061 .1157 .1071 .1032 .1109 .1045 .0935 .1490 .3205  
 197.000 .1562 .1122 .1064 .3605  
 210.000 .1290  
 220.000 1.4318 .1329 .1045  
 232.000 .0987

UPWT 1059 (IH4) 01-T15-S8N16 EXTERNAL TANK

(MQ3TAA)

MACH (4) = 4.600 ALPHA (1) = -5.000

SECTION (1) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000	.2696			
151.000		.3341		
180.000			.4024	.0419
210.000			.5269	

MACH (4) = 4.600 ALPHA (2) = .000 PINF = .63200-01 Q(PSI) = .98085 RN/L = 1.2000 CPSTG = 1.8033

SECTION (1) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000				.6517	.4184	.1521									.0958
45.000															.0379
67.500										.1025				.0844	.0513
90.000							.0556	.0799	.0829	.1719	1.1501			.1613	.0724
112.500									.0859	.0905	.0784			.0875	.0618
135.000											.0875			.0890	.0875
157.500													.0844		.3853
167.000															.0949
180.000	1.7905	1.2682	1.2631	.6267	.4212	.1646	.0864	.0929		.0929			.0910	.0910	.1123
197.000					.4184	.1797				.0929					
210.000						.1727									.1123
220.000															.1007
225.000												.1723			
232.000															.2614

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000								.0568				.0846			
45.000								.0390				.0396			.0615
67.500				.0437				.0898	.0574	.0487	.0591	.0551			.1049
90.000		.0482		.0573		.0558		.0603		.0869	.0788	.0724	.0771		.1275
112.500		.0603		.0573		.0603		.0881	.0707	.0736	.0811	.1072	.1090		.1901
123.000													.1171	.1304	.1797
135.000		.0920		.0859		.0829		.0852	.0887	.0788	.0811	.0794	.1235		.1663
157.500	.1317	.1142	.0949	.0871		.0929		.0823	.0608	.0658	.0570	.0601	.0747		.1589
161.000	.1123														
166.000				.0949						.0715					
180.000	.4627	.2517	.1220	.0987	.0910	.0833	.0891	.0639	.0690	.0671	.0620	.0557	.0994		.2013
197.000				.1142						.0734					.2355
210.000								.0848				.0589			
220.000				1.3358						.0804					
232.000								.0424				.0633			

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-S8N16 EXTERNAL TANK

(MQ3TAA)

MACH ( 4 ) = 4.600 ALPHA ( 2 ) = .000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000 .2191

151.000 .2184

180.000 .2463 .0127

210.000 .3729

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OF POOR QUALITY

UPWT 1059 (IH4) 01-T15-S8N16 SOLID RCKT. BSTR.

(MQ3SAA) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 1.200 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = .46020 Q(P51) = 1.8721 RN/L = 1.2000 CPSTG = 1.7063

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PS1															
90.000	3.6851		.8849	.8924		.8896							.4199		
180.000				.8817		.9263					.3917		.6571		
225.000										.3956			.5970		.4830
247.500												.4500	.5610	.5175	.4725
260.000								2.4374							
270.000		1.2240	.9322	.9399	.9904	2.3555	2.9170		.2806	.2475	.2019	.4440	.4050	.3975	.3885
315.000												.3300			
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900			
PS1															
90.000	.4807	.7964	.3904					.8743					.8463		
180.000	.4935	1.8418	.8801	.4189				.7710			.6004		.4031		
210.000					.3909	1.2258		.4339		.2512					
215.000							.2342		.1384		.0954				
225.000		2.0603	.3276	.2305				.4030			.2216				
240.000								.3815			.3291		.3518		
247.500	.8776														
270.000	.6511	1.3349	.2788	.2623				.3947					.8994		
315.000	.5070														

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = .48020 Q(P51) = 1.8721 RN/L = 1.2000 CPSTG = 1.7063

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PS1															
90.000	3.6550		.8314	.8441		.8448							.3671		
180.000				.6969		.7376					.2736		.5457		
225.000										.1788			.5472		.4892
247.500												.2981	.5977	.5365	.4907
260.000								2.2060							
270.000		1.2298	.9312	.9699	.9912	2.6839	3.0082		.2770	.1928	.1894	.2767	.5839	.5381	.4892
315.000												.4448			



TABULATED SOURCE DATA - 1H4

UPWT 1059 (IH4) 01-T15-38N16 SOLID RCKT. BSTR.

(MQ3SAA)

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000

SECTION (1) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

[illegible]

MACH ( 2 ) = 2.952    ALPHA ( 1 ) = .000    PINF = .26325    Q(P51) = 1.6156    RN/L = 1.2100    CPSTG = 1.7529

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE 'PL

[illegible]

UPWT 1059 (IH4) 01-T11-S8N16 SOLID RCKT. BSTR.

(MQ3SAA)

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = .26525 Q(P51) = 1.6156 RN/L = 1.2100 CPSTG = 1.7529

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	3.3089		.5455	.5545		.5615							.1890		
180.000			.4735			.4580					.1491		.2571		
225.000										.1431			.2631		.2900
247.500												.1360	.2556	.3169	.2914
260.000								1.9025							
270.000		1.0150	.7142	.5337	.7006	.7310	2.9641		.2687	.1745	.1325	.1420	.2257	.3109	.2929
315.000											.2182				
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900			
PSI															
90.000	.2613	.6211	.3140					.4503					.4353		
180.000	.3333	.8531	.3768	.3690				.6321			.5688		.4017		
210.000					.2776	.9434		.3895		.2359					
215.000							.1873		.0943		.0593				
225.000		.7502	.4292	.1541				.2925			.1563				
240.000								.1914			.1456	.1513			
247.500	.4857														
270.000	.4050	.7833	.1493	.1158				.1794				.4521			
315.000	.2765														

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .13175 Q(P51) = 1.2629 RN/L = 1.2000 CPSTG = 1.7839

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	.3546		.3484	.3509		.0844							.0899		
180.000				.5091		.1559					.1910		.1987		
225.000										.3004			.2033		.4445
247.500												.2110	.2357	.1879	.2018
260.000								.7998							
270.000		.5417	.3804	.4380	.4953	.9993	.1365		.1050	.0869	.0678	.0924	.1294	.1017	.1340
315.000											.1001				
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900			
PSI															
90.000	.2328	.0770	.1354					.1130				.5802			
180.000	.3990	.3903	.1363	.2132				.2187			.1410	.1431			
210.000					.4567	.2077		.1183		.1499					
215.000							.0647		.0426		.1995				
225.000		.2975	.0644	.1155				.0743			.0702				
240.000								.0647			.0551	.1124			

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 437

UPWT 1059 (IH4) 01-T15-S8N16 SOLID RCKT. BSTR.

(MQ3SAA)

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
PSI												
247.500	1.9978											
270.000	.5583	.0840	.0448	.0551				.2082				.0416
315.000	.0000											

PSI

247.500 1.9978

270.000 .5583 .0840 .0448 .0551

315.000 .0000

.2082

.0416

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .13175 Q(PSI) = 1.2629 RN/L = 1.2000 CPSTG = 1.7839

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	2.8239		.3451	.3451		.3451							.1003		
180.000				.4311		.3753					.1084		.1136		
225.000										.1493			.0971		.1898
247.500												.1330	.1315	.1629	.1778
260.000								1.5916							
270.000		.8008	.5485	.3811	.4542	.5163	.3712		.1352	.1247	.0828	.0986	.0927	.0986	.1016
315.000											.0762				

PSI

90.000 2.8239

180.000

225.000

247.500

260.000

270.000

315.000

.3451

.3451

.3451

.4311

.3753

.1493

.1084

.1003

.1136

.0971

.1315

.1629

.1778

1.5916

.1330

.1315

.1629

.0986

.0927

.0986

.1016

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
PSI												
90.000	.1185	.3723	.1142					.2139				.2213
180.000	.1539	.5181	.4584	.1593				.2349			.2335	.1657
210.000					.1209	.4547		.2102		.1140		
215.000							.1140		.0577			
225.000		.9413	.1458	.0713				.0975			.0357	
240.000								.0756			.0742	.0750
247.500	.1599											
270.000	.1420	.6340	.0896	.0620				.0722				.2139
315.000	.1375											

PSI

90.000 .1185 .3723 .1142

180.000 .1539 .5181 .4584 .1593

210.000

215.000

225.000

240.000

247.500 .1599

270.000 .1420 .6340 .0896 .0620

315.000 .1375

.2139

.2349

.2102

.1140

.0577

.0975

.0756

.0722

.2213

.1657

.2335

.1140

.0357

.0742

.0742

.0750

.2139

MACH ( 4 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .65200-01 Q(PSI) = .98085 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	2.3878		.2464	.2360		.2386							.0445		
180.000				.4185		.3606					.0933		.0823		
225.000										.1222			.1112		.1234
247.500												.0716	.1112	.1311	.1189
260.000								.8974							
270.000		.6285	.4185	.2719	.3317	.3230	.3884		.0978	.0943	.0617	.0457	.0533	.0716	.0610

PSI

90.000 2.3878

180.000

225.000

247.500

260.000

270.000

.2464

.2360

.2386

.4185

.3606

.1222

.0933

.0445

.0823

.1112

.1112

.1311

.0716

.0533

.0716

.0610

.8974

.0978

.0943

.0617

.0457

.0533

.0716

.0610

(MQ3SAA)

DEPENDENT VARIABLE PL

DEPENDENT VARIABLE PL

[illegible]

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 439

UPWT 1059 (IH4) 01-T15-S8N16 ORBITER FUSELAGE

(MQ3BAB) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = 1.1369 Q(PSI) = 4.6665 RN/L = 3.0000 CPSTG = 1.7063

## SECTION ( 1 ) ORBITER FUSELAGE

## DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0900	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

PHI

.000

7.9485

4.5299

2.3299

2.5620

4.0520

4.6527

7.1828

1.3085

10.000

4.5375

20.000

3.9074

24.500

3.5249

39.000

2.6622

163.000

4.0470

174.000

180.000

7.9485

2.9868

2.6141

2.5902

2.7957

5.7742

6.0539

5.9758

5.3971

X/LB

.2000

.3000

.4000

.5000

.6000

.7800

.8300

.8050

.8290

.8620

.9500

.9630

.9750

1.0000

1.0145

PHI

.000

1.9908

1.5279

1.0792

.8710

1.1562

3.4753

.3304

.2341

.2437

23.000

1.2346

24.000

1.6018

31.500

1.6801

33.100

1.1194

35.000

1.5736

40.000

1.4041

1.1564

45.000

1.1194

50.000

1.8452

51.600

1.2430

57.000

1.1531

60.900

1.1167

65.000

1.0574

68.000

.9624

69.000

1.0132

79.300

.8549

95.500

.9357

1.1350

95.700

1.1987

96.300

2.2404

103.000

.9631

105.000

.9863

112.600

.5626

117.500

1.0353

1.0789

120.800

1.9599

127.900

2.7494

129.500

2.9021

 ORIGINAL PAGE 3  
 AT BOOK QUALITY

UPWT 1059 (IH4) 01-T15-38N16 ORBITER FUSELAGE

(MQ3BAB)

MACH (1) = 2.360 ALPHA (1) = .000

SECTION (1) ORBITER FUSELAGE DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
130.000									2.3501	1.3977		1.3257			
135.000		.7023				1.0828									
139.600								2.4632							
144.000												1.5223			
155.000	2.1662														
180.000	1.5315	.8886				1.1609									
X/LB	1.0250	1.0500													
PHI															
.000	.3274	.4899													

MACH (1) = 2.360 ALPHA (2) = 5.000 PINF = 1.1969 Q(PSI) = 4.6665 RN/L = 3.0000 CPSTG = 1.7063

SECTION (1) ORBITER FUSELAGE DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	7.4126	4.5333	3.9957	4.1851		3.7141	3.401	7.3658		1.0431					
10.000								3.3130							
20.000								2.2794							
24.500								2.3312							
39.000								2.1370							
163.000														3.7127	
174.000															
180.000	7.4126				2.4734			2.1596	2.3289	2.3574	4.9379	5.4491	5.2202		4.7493
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	1.4984	1.2524	.9397	.8596	1.5256		3.5020				.3367		.2309	.2577	
23.000		1.1035													
24.000	1.3991														
31.500	1.4681														
33.100		.9761													
35.000	1.4185														
40.000	1.2243	.9306													
45.000		.8868													
50.000	1.5501														
51.600													1.0828		
57.000		.9358													
60.900		.8968													
65.000		.8654													
68.000														.8080	

TABULATED SOURCE DATA - 1H4

UPWT 1059 (IH4) 01-T15-58N16 ORBITER FUSELAGE

(MQ3BAB)

MACH ( 1 ) = 2.360      ALPHA ( 2 ) = 5.000

[illegible]

X/LB	1.0250	1.0500
------	--------	--------

PHI  
.000 .4084 .6089

MACH ( 2 ) = 2.950    ALPHA ( 1 ) = .000    PINF = .66745    Q(PSI) = 4.0415    RN/L = 3.0200    CPSTG = 1.7529

SECTION ( 1 ) ORBITER FUSELAGE					DEPENDENT VARIABLE FL										
X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	6.7418	3.4956	1.5960	1.8042		1.6797	2.0161	6.4615		.5567					
10.000								3.5529							
20.000								2.2491							
24.500								1.8146							
39.000								1.5164							
163.000														3.1976	
174.000												5.0979			
180.000	6.7418				2.1706			1.8569	1.8431	2.0231	4.5685		5.0160		4.6752

[illegible]

UPWT 1059 (1H4) 01-T15-S3N16 ORBITER FUSELAGE

(MQ3BAB)

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE F.

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------

PHI									
24.000	1.0252								
31.500	1.0861								
33.100	.9027								
35.000	1.1155								
40.000	1.2624	.9147							
45.000	.8822								
50.000	1.4367								
51.600								.6925	
57.000	.7985								
60.900	.7964								
65.000	.7943								
68.000								.5188	
69.000	.7914								
79.300			.5174						
95.500			.5615	.5921					
95.700	.8498								
96.300	1.0236								
103.000		.5736							
105.000									.3046
112.600		.5679							
117.500							.6733	.6704	
120.800					1.1787				
127.900			2.5240						
129.500				2.1173					
130.000					1.5882	.8272	.6882		
135.000	.3857	.6719							
139.600					1.6388				
144.000							.9373		
155.000	1.6407								
180.000	1.2401	.5142	.6681						
X/LB	1.0250	1.0500							
PHI									
.000	.2269	.3607							



TABULATED SOURCE DATA - IH4

UPWT 1059 (IH4) 01-T15-S8N16 ORBITER FUSELAGE

(MQ3BAB)

MACH ( 2 ) = 2.950    ALPHA ( 2 ) = 5.000    PINF = .6345    Q(PSI) = 4.0415    RN/L = 3.0200    CPSTG = 1.7529

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	6.0977	3.3328	2.2217	2.5511		2.3565	2.4192	5.3208		.3928					
10.000								2.0275							
20.000								1.8104							
24.500								1.8061							
39.000								1.5698							
163.000														2.6181	
174.000															
180.000	6.0977				1.7338			1.4467	1.4467	1.5802	3.5806	4.1243	4.0176		3.7900

[illegible]

UPWT 1059 (IH4) 01-T15-S8N16 ORBITER FUSELAGE

(MQ38AB)

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB 1.0250 1.0500

PHI

.000 .1968 .3039

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -10.000 PINF = .33922 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB .0000 .0050 .0200 .0400 .0500 .0600 .0800 .1000 .1250 .1500 .1600 .1650 .1700 .1750 .1800

PHI

.000	7.3719	3.3457	1.4069	1.4700		1.4291	.3845	4.7829		.4971				
10.000								3.0400						
20.000								1.0709						
24.500								.9845						
39.000								1.0845						

163.000													3.6918	
174.000														
180.000	7.3719				2.6505		2.2723	2.2410	2.4548	5.4659	6.1279	6.0733		5.6662

X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8000 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI

.000	1.0046	.5344	.6529	.6617	.5620		1.7321			.1652		.0793	.0901	
23.000		.5716												
24.000	.7708													
31.500	.8323													
33.100		.6671												
35.000	.8242													
40.000	.7303	.7092												
45.000		.6995												
50.000	.7983													
51.600												.5989		
57.000		.5602												
60.900		.5554												
65.000		.4997												
68.000												.4602		
69.000		.4582												
79.300					.5112									
95.500					.5595		.4806							
95.700		.4201												
96.300	.7023													
103.000					.5901									
105.000					.5908									.1230
112.600														
117.500											.5173		.5391	
120.800								1.1442						

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-S8N16 ORBITER FUSELAGE

(MQ3BAB)

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -10.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------

PHI

127.900

2.2695

129.500

2.1251

130.000

1.6107

.7202

135.000

.3209

.5105

139.600

1.6466

144.000

.5126

155.000

1.8214

180.000

1.2907

.4129

.5154

.7097

X/LB 1.0250 1.0500

PHI

.000

.0859

.0973

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = -5.000 PINF = .32922 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

PHI

.000

6.2448

2.9542

1.2287

1.2782

1.2475

.5709

4.9741

.3900

10.000

2.6168

20.000

1.0485

24.500

.9272

39.000

.9288

163.000

3.0460

174.000

5.1023

180.000

6.2448

2.0066

1.6883

1.6652

1.8493

4.4611

5.0945

4.8318

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------

PHI

.000

.7411

.4693

.6021

.5286

.4126

1.2855

.1575

.0867

.0909

23.000

.5631

24.000

.4871

31.500

.4676

33.100

.7298

35.000

.4369

40.000

.5340

.7362

45.000

.7152

50.000

.6699

51.600

.4153

57.000

.4866

60.900

.4831

UPWT 1059 (IH4) 01-T15-S8N16 ORBITER FUSELAGE

(MQ38AB)

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = -5.000

SECTION ( 1 ) ORBITER FUSELAGE		DEPENDENT VARIABLE PL													
X/LB		.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000 1.0145
PHI															
65.000			.4732												
68.000														.3093	
69.000			.4082												
79.300						.4209									
95.500						.4421		.3460							
95.700			.4047												
96.300	.6751														
103.000						.4393									
105.000															.1257
112.600						.4379									
117.500															
120.800										1.0083			.4484	.4477	
127.900							1.2365								
129.500									1.4987						
130.000										1.3819	.7148		.4774		
135.000			.2881			.4336									
139.600										1.4509					
144.000													.6709		
155.000	1.5021														
180.000	1.2081	.4226				.3782									
X/LB	1.0250	1.0500													
PHI															
.000	.0915	.1028													

MACH ( 3 ) = 3.700 ALPHA ( 3 ) = .000 PINF = .32922 Q(PS1) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORBITER FUSELAGE		DEPENDENT VARIABLE PL													
X/LB		.0000	.0050	.0200	.0400	.0500	.0600	.0300	.1000	.1250	.1500	.1600	.1650	.1700	.1750 .1800
PHI															
.000	5.2139	2.6777	1.3652	1.1263			1.1741	1.6475	4.3769		.2869				
10.000									1.9684						
20.000									1.3808						
24.500									1.0696						
39.000									.8071						
163.000															2.3319
174.000															
180.000	5.2139					1.4674			1.2043	1.2033	1.3369	3.2645	3.8420	3.8498	3.7041

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-38N16 ORBITER FUSELAGE

(MQ38AB)

MACH ( 3 ) = 3.700 ALPHA ( 3 ) = .000

SECTION ( 1 ) ORBITER FUSELAGE	DEPENDENT VARIABLE PL														
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8700	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	.6775	.3955	.4897	.4132	.3132		.9357				.1314		.0910	.1029	
23.000		.4587													
24.000	.3857														
31.500	.3793														
33.100		.5511													
35.000	.3549														
40.000	.4246	.5754													
45.000		.5916													
50.000	.5932														
51.600													.2882		
57.000		.4716													
60.900		.4134													
65.000		.4100													
68.000													.2190		
69.000		.3744													
79.300					.2847										
95.500					.2957		.2505								
95.700		.3231													
96.300	.5982														
103.000					.2957										
105.000															.0924
112.600					.2950										
117.500												.3142		.3149	
120.800									.7746						
127.900						1.5217									
129.500								1.4012							
130.000									1.0478	.5028		.3415			
135.000		.1951			.3176										
139.600									.9490						
144.000												.5017			
155.000	1.1535														
180.000	.9040	.2832			.2821										
X/LB	1.0250	1.0500													
PHI															
.000	.1195	.1837													

1.0000  
 1.0145  
 1.0250  
 1.0500  
 1.1535  
 1.4012  
 1.5217



DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-98N16 ORBITER FUSELAGE

(MQ3BAB)

MACH ( 3 ) = 3.700 ALPHA ( 4 ) = 5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE FL

X/LB 1.0250 1.0500

PHI  
.000 .1683 .2025

MACH ( 4 ) = 4.600 ALPHA ( 1 ) = -10.000 PINF = .16535 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE FL

X/LB .0000 .0050 .0200 .0400 .0500 .0600 .0800 .1000 .1250 .1500 .1600 .1650 .1700 .1750 .1800

PHI  
.000 6.3004 2.7845 1.0471 .9835 .9765 .6837 3.4215 .3871  
10.000 1.9212  
20.000 .6317  
24.500 .6964  
39.000 .7402163.000 2.8228  
174.000 4.9338 4.8610 3.9388  
180.000 6.3004 2.1127 1.4750 1.4336 1.6028 4.2120 4.9338 4.8610 3.9388

X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8000 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI  
.000 .6786 .3353 .3875 .4158 .3252 1.1178 .1110 .0519 .0615  
23.000 .348224.000 .5264  
31.500 .4924

33.100 .3693

35.000 .4454

40.000 .4503 .3369

45.000 .3320

50.000 .5231

51.600

57.000 .3258

60.900 .2896

65.000 .2862

68.000 .2575

69.000 .2575

79.300 .2937

95.500 .3012 .2978

95.700 .2425

96.300 .5560

103.000 .3019

105.000 .2889

112.600 .0622

117.500 .3094 .3156

120.800 .7359





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TABULATED SOURCE DATA - 1H4

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UPWT 1059 (1H4) 01-T15-S8N16 ORBITER FUSELAGE

(MQ38AB)

MACH ( 4 ) = 4.600 ALPHA ( 2 ) = -5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
65.000		.2681													
68.000													.1614		
69.000		.2288													
79.300					.2442										
95.500					.2526		.1916								
95.700		.2309													
96.300	.4793														
103.000					.2484										
105.000															.0604
112.600					.2449										
117.500												.2723		.2765	
120.800									.7861						
127.900						.9168									
129.500								.9409							
130.000									.9502	.5108		.2835			
135.000		.1698			.1775										
139.600									.8705						
144.000												.3691			
155.000	1.1892														
180.000	.9109	.2367			.2213										
X/LB	1.0250	1.0500													
PHI															
.000	.0584	.0601													

MACH ( 4 ) = 4.600 ALPHA ( 3 ) = .000 PINF = .16565 Q(PS1) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0300	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	4.2038	2.5091	1.1403	.7538		.8360	.9288	2.8652		.2013					
10.000								.8314							
20.000								.7177							
24.500								.6203							
39.000								.5391							
163.000														1.7660	
174.000															
180.000	4.2038				1.0667			.8510	.8622	.9605	2.3526	2.8846	3.1109		3.0875

UPWT 1059 (1H4) 01-T15-38N16 ORBITER FUSELAGE

(MQ3BAB)

MACH ( 4 ) = 4.600      ALPHA ( 3 ) = .000

## SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

[illegible]

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 453

UPWT 1059 (IH4) 01-T15-08N16 ORBITER FUSELAGE

(MQ3BAB)

MACH (4) = 4.600 ALPHA (4) = 5.000 PINF = .16565 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE P/L

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	4.0861	2.6695	1.3587	.7751		.3806	.4150	.8797		.2150					
10.000								.2036							
20.000								.2118							
24.500								.2036							
39.000								.4024							
163.000														1.1703	
174.000															
180.000	4.0861				.7422			.5725	.5949	.6485	1.3875	1.7452	2.0691		2.1211
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	.2672	.2769	.2290	.2153	.1573		.5549				.0786		.0496	.0599	
23.000		.2411													
24.000	.2655														
31.500	.2916														
33.100		.1922													
35.000	.3372														
40.000	.3291	.1727													
45.000		.1873													
50.000	.3095														
51.600															
57.000		.1818											.0968		
60.900		.1832													
65.000		.1825													
68.000													.0975		
69.000		.1804													
79.300					.0961										
95.500					.0975		.0568								
95.700		.1797													
96.300	.3768														
103.000					.0975										
105.000															.0449
112.600					.0975										
117.500												.1263		.1397	
120.800								.3002							
127.900						.2070									
129.500								.3580							
130.000									.3758	.1921		.1256			
135.000		.0947			.0975				.3319						
139.600															
144.000												.1425			
155.000	.5695														
180.000	.4891	.1189			.0953										

ORIGINAL PAGE IS  
OF POOR QUALITY

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 454

UPWT 1059 (IH4) 01-T15-58N16 ORBITER FUSELAGE

(MQ3BAB)

MACH ( 4 ) = 4.600 ALPHA ( 4 ) = 5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE FL

X/LB 1.0250 1.0500

PHI  
.000 .0671 .0811

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 455

UPWT 1059 (IH4) 01-T15-S3N16 ORB. UPPER WING

(MQ3UAB) ( 15 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 3.000 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = 1.1939 Q(PSI) = 4.6665 RN/L = 3.0000 CPSTG = 1.7063

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE P.

2Y/BW .4000 .6000 .8000

X/CW

.050	1.7760		
.200	.8512	.8738	1.4050
.600	.4758	.3416	
.800		.3926	
.900	2.1916	.4182	
.950	.5976		

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = 1.1969 Q(PSI) = 4.6665 RN/L = 3.0000 CPSTG = 1.7063

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	1.6121		
.200	.6335	.7612	1.1510
.600	.2760	.2760	
.800		.2995	
.900	2.2383	.3422	
.950	.4401		

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000 PINF = .66345 Q(PSI) = 4.0415 RN/L = 3.0200 CPSTG = 1.7529

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	1.2323		
.200	.5364	.6499	1.0488
.600	.2036	.1983	
.800		.1995	
.900	1.0862	.2896	
.950	.2925		

UPWT 1059 (1H4) 01-T15-SIN16 ORB. UPPER WING

(MQ3UAB)

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = .663-5 Q(PSI) = 4.0415 RN/L = 3.0200 CPSTG = 1.7529

SECTION ( 3 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	1.1497		
.200	.4247	.5338	.8084
.600	.1549	.1537	
.800		.1692	
.900	1.1287	.2264	
.950		.2377	

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -10.000 PINF = .329E2 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	1.2894		
.200	.5148	.6703	1.0760
.600	.2144	.2003	
.800		.1802	
.900		.5466	.3016
.950		.2721	

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = -5.000 PINF = .329E2 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.9425		
.200	.4262	.5174	.9028
.600	.1669	.1471	
.800		.1375	
.900		.5558	.2431
.950		.2077	

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UPWT 1059 (IH4) 01-T15-18N16 ORB. UPPER WING

(MQ3UAB)

MACH ( 3 ) = 3.700 ALPHA ( 3 ) = .000 PINF = .32122 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE FL

2Y/BW .4000 .6000 .8000

X/CW

.050	.7078		
.200	.2832	.3986	.6702
.600	.1043	.1200	
.800		.1195	
.900		.5449	.1935
.950		.1731	

MACH ( 3 ) = 3.700 ALPHA ( 4 ) = 5.000 PINF = .32122 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE FL

2Y/BW .4000 .6000 .8000

X/CW

.050	.6105		
.200	.2428	.2915	.5356
.600	.0937	.0882	
.800		.0992	
.900		.5556	.1595
.950		.1461	

MACH ( 4 ) = 4.600 ALPHA ( 1 ) = -10.000 PINF = .16165 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE FL

2Y/BW .4000 .6000 .8000

X/CW

.050	.9083		
.200	.3610	.4678	.8094
.600	.1032	.1150	
.800		.1144	
.900		.3268	.2082
.950		.1516	

UPWT 1059 (IH4) 01-T15-EBN16 ORB. UPPER WING

(MQ3UAB)

MACH ( 4 ) = 4.600 ALPHA ( 2 ) = -5.000 PINF = .16555 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE F<sub>L</sub>

2Y/BW .4000 .6000 .8000

X/CW

.050	.6227		
.200	.2516	.3188	.6234
.600	.0803	.0964	
.800		.0970	
.900		.3289	.1862
.950		.1404	

MACH ( 4 ) = 4.600 ALPHA ( 3 ) = .000 PINF = .16555 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE P<sub>L</sub>

2Y/BW .4000 .6000 .8000

X/CW

.050	.4564		
.200	.1552	.2269	.4381
.600	.0612	.0723	
.800		.0712	
.900		.3290	.1668
.950		.1207	

MACH ( 4 ) = 4.600 ALPHA ( 4 ) = 5.000 PINF = .16555 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE P<sub>L</sub>

2Y/BW .4000 .6000 .8000

X/CW

.050	.3678		
.200	.0924	.1554	.3260
.600	.0382	.0518	
.800		.0524	
.900		.3237	.1377
.950		.1106	



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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-S3N16 ORB. LOWER WING

(MQ3LAB) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = 1.1939 Q(P51) = 4.6665 RN/L = 3.0000 CPSTG = 1.7063

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000						3.4547		3.7636		.7771
.001	.9098	1.0151		2.7796	1.4671	3.5076		1.4209		
.002					1.2237			1.3511		
.003					4.1647			3.9377		
.004					1.8913			1.7844		
.005					1.5172			1.3365		
.025				1.7387	1.4736		1.50 9			
.045				1.7279						
.100						1.2310		1.4236	1.4475	
.153	.9616									
.177					1.1969					
.200				1.0792						
.299	1.1257									
.302				1.2115			1.3380			
.428						2.3923				
.444	1.1999									
.487					2.5930					
.559				2.7529						
.600						2.7180				
.700						2.4571				
.736	3.5542									
.800						1.7862				
.850						1.4031				
.900				.8257		1.0554	1.5156	1.5197		

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = 1.1939 Q(P51) = 4.6665 RN/L = 3.0000 CPSTG = 1.7063

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000						4.0315		4.0264		.5051
.001	.7942	1.5631		3.3108	1.9925	4.0708		1.9793		
.002					1.6602			1.8877		
.003					4.3695			3.7926		
.004					2.4682			2.4348		
.005					1.8047			1.8920		

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UPWT 1059 (IH4) 01-T15-S1N16 ORB. LOWER WING

(MQ3LAB)

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000

SECTION ( 1 ) ORB. LOWER WING		DEPENDENT VARIABLE PL									
2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980	
X/CW											
.025				1.8371	1.8760		2.0507				
.045				1.8220							
.100						1.5653		2.0162	2.0594		
.153	.8121										
.177					1.4122						
.200				1.2115							
.299	1.3395										
.302				1.8411			1.8630				
.428						3.1208					
.444	1.2406										
.487					3.3317						
.559				3.5164							
.600						3.6632					
.700						3.0683					
.736	3.7665										
.800						2.1106					
.850						1.6264					
.900				.6113		1.2194	1.8568		2.0874		

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000 PINF = .66345 Q(PSI) = 4.0415 RN/L = 3.0200 CPSTG = 1.7529

SECTION ( 1 ) ORB. LOWER WING		DEPENDENT VARIABLE PL									
2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980	
X/CW											
.000						2.9085		3.1218		.5036	
.001		.6852	.6081		2.1295	1.2813	2.9546	1.1301			
.002						1.0063		1.0297			
.003						3.4393		3.2533			
.004						1.5824		1.5647			
.005						1.1469		1.0312			
.025				.7383	1.1910		1.2162				
.045				.7520							
.100						.9240		1.1176	1.1427		
.153	.6201										
.177					.8525						
.200				.9431							
.299	.5879										
.302				.8570			.9477				
.428						.9310					
.444	.5985										
.487					1.5518						
.559				1.7234							
.600						1.5416					

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UPWT 1059 (IH4) 01-T15-S6N16 ORB. LOWER WING

(MQ3LAB)

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW .2500 .3011 .3480 .4000 .5000 .6000 .7500 .8500 .9500 .9980

X/CW

.700

1.7796

.736

1.9298

.800

1.5025

.850

1.1583

.900

.4242

.8423

1.1173

.5056

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = .66345 Q(PSI) = 4.0415 RN/L = 3.0200 CPSTG = 1.7529

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW .2500 .3011 .3480 .4000 .5000 .6000 .7500 .8500 .9500 .9980

X/CW

.000

3.2031

3.3345

.3019

.001

.5048

.5031

2.6215

1.5421

3.2693

1.5176

.002

1.1866

1.3649

.003

3.4864

3.1058

.004

1.9025

1.9849

.005

1.3420

1.3926

.025

1.3378

1.3314

1.5081

.045

1.3314

.100

1.1158

1.4676

1.4889

.153

.5031

.177

.9616

.200

.8569

.299

.4941

.302

.9630

1.2181

.428

1.0756

.444

.9276

.487

1.7910

.559

1.9728

.600

2.0818

.700

2.4906

.736

2.0135

.800

1.8429

.850

1.3898

.900

.3899

1.0080

1.6493

.7835

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UPWT 1059 (1H4) 01-T15-S81116 ORB. LOWER WING

(MQ3LAB)

MACH (3) = 3.700 ALPHA (1) = -10.000 PINF = .32921 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				2.0128		2.2824		.3303
.001	.5975	.4566	1.4900	.5716	1.8694	.5502		
.002				.4599		.5033		
.003				3.0880		2.9156		
.004				.8423		.6752		
.005				.4890		.4959		
.025		.4696	.4178		.5117			
.045		.5052						
.100				.5456		.4874	.5003	
.153	.5894							
.177			.4813					
.200		.6617						
.299	.5121							
.302		.6427			.5092			
.428				.5752				
.444	.6544							
.487			1.3497					
.559		1.4151						
.600				.9699				
.700				.9070				
.736	1.9430							
.800				.8475				
.850				.7046				
.900		.2385		.5454	.5172		.3603	

MACH ( 3 ) = 3.700    ALPHA ( 2 ) = -5.000    PINF = .3292    Q(PSI) = 3.1550    RN/L = 3.0000    CPSTG = 1.7839

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				1.6827		2.2203		.3204
.001	.5146	.3867	1.2326	.4984	1.8056	.5272		
.002				.3382		.4361		
.003				2.5070		2.7323		
.004				.7230		.6796		
.005				.3932		.4361		
.025		.4159	.3803		.4661			
.045		.4353						
.100				.3151		.4385	.4887	
.153	.4579							
.177			.3392					
.200		.3510						
.299	.4302							

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-SB16 ORB. LOWER WING

(MQ3LAB)

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = -5.000

SECTION ( 1 ) ORB. LOWER WING				DEPENDENT VARIABLE PL						
2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.302				.4787			.4626			
.428						.5360				
.444	.3950									
.487					.9501					
.559				1.0465						
.600						.8590				
.700						.7451				
.736	1.3083									
.800						.7944				
.850						.6518				
.900				.2353		.4979	.5187		.2677	

MACH ( 3 ) = 3.700 ALPHA ( 3 ) = .000 PINF = .32922 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING				DEPENDENT VARIABLE PL						
2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						1.6332		2.2203		.2642
.001		.3825	.3047		1.1488	.5219	1.9131	.6926		
.002						.3598		.6162		
.003						2.2067		2.4217		
.004						.7587		.8914		
.005						.4198		.6279		
.025				.3776	.4019		.5689			
.045				.3922						
.100						.3484		.6288	.6515	
.153	.3306									
.177					.3574					
.200				.2838						
.299	.3221			.3691			.4866			
.302						.5721				
.428										
.444	.2985									
.487					.7088					
.559				.9441						
.600						.8063				
.700						.8936				
.736	1.0582									
.800						.9411				
.850						.7568				
.900				.2818		.5612	.5975		.2485	



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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-SIN16 ORB. LOWER WING

(MQ3LAB)

MACH ( 4 ) = 4.600 ALPHA ( 1 ) = -10.000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.302				.3356			.3460			
.428						.3356				
.444	.3103									
.487					.5316					
.559				.9711						
.600						.5954				
.700						.7110				
.736	1.1782									
.800						.6519				
.850						.5229				
.900				.2105		.3872	.3233		.1988	

MACH ( 4 ) = 4.600 ALPHA ( 2 ) = -5.000 PINF = .16565 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						1.3151		1.8612		.1963
.001		.3261	.2579		.9247	.3796	1.5113	.4221		
.002						.2514		.3237		
.003						1.8817		2.2162		
.004						.5800		.5808		
.005						.2985		.3460		
.025				.2693	.2936		.3764			
.045				.2660						
.100						.2284		.3407	.3715	
.153	.3082									
.177					.2088					
.200				.1909						
.299	.2431									
.302				.2252			.2476			
.428						.3356				
.444	.2401									
.487					.3952					
.559				.6205						
.600						.4773				
.700						.3758				
.736	.8248									
.800						.4788				
.850						.4067				
.900				.1504		.3138	.2918		.1832	

UPWT 1059 (IH4) 01-T15-SEN16 ORB. LOWER WING

(MQ3LAB)

MACH ( 4 ) = 4.600    ALPHA ( 3 ) = .000    PINF = .165E5    Q(PSI) = 2.4532    RN/L = 3.0000    CPSTG = 1.8033

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				1.2973		1.7052		1.1575
.001	.2338	.1884	.8606	.4011	1.4293	.4799		
.002				.2614		.3905		
.003				1.6284		1.8793		
.004				.6051		.6446		
.005				.3150		.3905		
.025		.2354	.3134		.4313			
.045		.2354						
.100				.2398		.4043	.4206	
.153	.2176							
.177			.2221					
.200		.1774						
.299	.1803							
.302		.2251			.3055			
.428				.3473				
.444	.1789							
.487			.3667					
.559		.4844						
.600				.3696				
.700				.2979				
.736	.6275							
.800				.3522				
.850				.3642				
.900		.1948		.3250	.2593		.1350	

MACH (4) = 4.600    ALPHA (4) = 0.000    PINF = .16563    Q(P51) = 2.4532    RN/L = 3.0000    CPSTG = 1.8033

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				1.4850	1.3554	.1075
.001	.1727	.1515	1.0176	.5620	1.7871	.7865
.002				.3959		.6184
.003				1.6369		1.7189
.004				.8066		.9742
.005				.4692		.6596
.025		.2525	.4366		.6891	
.045		.2590				
.100				.3951	.6353	.5897
.153	.1841					
.177			.2596			
.200		.1939				
.299	.1496					



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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-S8'16 ORB. LOWER WING

(MQ3LAB)

MACH ( 4 ) = 4.600 ALPHA ( 4 ) = 5.000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7501	.8500	.9500	.9980
X/CW										
.302				.2214			.4361			
.428						.3130				
.444	.1481									
.487					.4459					
.559				.5924						
.600						.4123				
.700						.5032				
.736	.5940									
.800						.5359				
.850						.4409				
.900				.1675		.3405	.3133		.2105	

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UPWT 1059 (IH4) 01-T15-S8116 ORB. VERT. TAIL

(MQ3VAB) ( 15 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 3.000 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = 1.1965 Q(PSI) = 4.6665 RN/L = 3.0000 CPSTG = 1.7063

## SECTION ( 1 ) ORB. VERT. TAIL

## DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

## X/CV

.000	4.3541	4.2875	3.5297	4.2210
.300	2.2064	2.1543	1.9370	
.500		1.9394		
.700		.8312		
.900	.6825	.7433	.8787	

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = 1.1965 Q(PSI) = 4.6665 RN/L = 3.0000 CPSTG = 1.7063

## SECTION ( 1 ) ORB. VERT. TAIL

## DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

## X/CV

.000	3.8028	3.6919	2.9341	3.5263
.300	1.9466	1.9017	1.7527	
.500		1.7054		
.700		.7347		
.900	.5949	.6496	.7657	

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000 PINF = .66345 Q(PSI) = 4.0415 RN/L = 3.0200 CPSTG = 1.7529

## SECTION ( 1 ) ORB. VERT. TAIL

## DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

## X/CV

.000	3.5707	3.4256	2.9392	3.5297
.300	1.6198	1.2487	1.0715	
.500		1.4019		
.700		.6081		
.900	.4357	.5174	.6009	

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-S8N16 ORB. VERT. TAIL

(MQ3VAB)

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = .66345 Q(PSI) = 4.0415 RN/L = 3.0200 CPSTG = 1.7529

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	2.9624	2.9180	2.3548	2.8225
.300	1.3575	.9469	.8173	
.500		1.0858		
.700		.4952		
.900	.3384	.4171	.4589	

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -10.000 PINF = .32922 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	2.7040	3.7690	3.1682	4.0848
.300	1.5190	.9617	.8175	
.500		1.1952		
.700		.5586		
.900	.4247	.4721	.3778	

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = -5.000 PINF = .32922 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	3.1095	2.6402	2.4678	3.1744
.300	1.0365	.7415	.6316	
.500		.9501		
.700		.5092		
.900	.3238	.4403	.3214	

MACH ( 3 ) = 3.700 ALPHA ( 3 ) = .000 PINF = .32922 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	2.6794	2.2442	2.0223	2.3825
.300	.8139	.6534	.5214	
.500		.7039		
.700		.3859		
.900	.2586	.3383	.2800	

UPWT 1059 (IH4) 01-T15-S8N 6 ORB. VERT. TAIL

(MQ3VAB)

MACH ( 3 ) = 3.700 ALPHA ( 4 ) = 5.000 PINF = .32922 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	2.1974	2.0848	1.6479	1.9278
.300	.6105	.5218	.5038	
.500		.5494		
.700		.2834		
.900	.1803	.2504	.2175	

MACH ( 4 ) = 4.600 ALPHA ( 1 ) = -10.000 PINF = .16565 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.9790	3.0115	2.6241	3.4348
.300	.7448	.5494	.5265	
.500		.5977		
.700		.3076		
.900	.2557	.2738	.1948	

MACH ( 4 ) = 4.600 ALPHA ( 2 ) = -5.000 PINF = .16565 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.9192	1.7690	1.8237	2.4722
.300	.4895	.4282	.3794	
.500		.4711		
.700		.2859		
.900	.1900	.2543	.1709	

MACH ( 4 ) = 4.600 ALPHA ( 3 ) = .000 PINF = .16565 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.8144	1.7137	1.2102	1.7103
.300	.4070	.3075	.2804	
.500		.3087		
.700		.1574		
.900	.1399	.1429	.1212	

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-SB-V16 ORB. VERT. TAIL

(MQ3VAB)

MACH (4) = 4.600 ALPHA (4) = 5.000 PINF = .16565 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION (1) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000 1.5038 1.3417 1.0089 1.3400

.300 .3242 .2565 .2256

.500 .2540

.700 .1186

.900 .0962 .1052 .0944

UPWT 1059 (IH4) 01-T15-S81116 EXTERNAL TANK

(MQ3TAB) ( 15 APR 76 )

### REFERENCE DATA

```

SREF  = 2690.0000 SQ.FT.   XMRP  = .0000 INCHES
LREF  = 1290.3000 INCHES  YMRP  = .0000 INCHES
BREF  = 1290.3000 INCHES  ZMRP  = .0000 INCHES
SCALE = .0100

```

### PARAMETRIC DATA

RN/L = 3.000 BETA = .000

MACH (1) = 2.360 ALPHA (1) = .000 PINF = 1.19691 Q(PSI) = 4.6665 RN/L = 3.0000 CPSTG = 1.7063

## SECTION ( 1 ) EXTERNAL TANK

## DEPENDENT VARIABLE PL

[illegible]

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-S8N16 EXTERNAL TANK

(MQ3TAB)

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA  
151.000 3.4246  
180.000 3.7020 .4779  
210.000 4.2173

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = 1.1965 Q(P5I) = 4.6665 RN/L = 3.0000 CPSTG = 1.7063

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA  
.000 5.0304 3.6198 2.0001 1.6579  
45.000 1.8483  
67.500 .8667  
90.000 1.0126 1.0372 1.0211 3.0200 6.6873 1.2200 .4228  
112.500 .9705 .9269 2.8547 .5341 .2648  
135.000 1.1527 1.1410 1.3165 .9946  
157.500 1.8133  
167.000 1.7869  
180.000 9.0664 6.7196 6.4346 3.6980 2.6270 1.3846 .8604 .7826 .8759 1.6909 1.7022 1.9356  
197.000 2.7126 1.4731 .8545  
210.000 1.4629 1.9619  
220.000 1.1583  
225.000 1.2900  
232.000 .8642

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA  
.000 1.2707 1.2380  
45.000 1.2076 1.2222 1.6859  
67.500 1.4635 1.3920 1.3244 1.2648 1.2262 1.9583  
90.000 .4920 .6861 1.6718 1.5418 1.2921 1.2211 1.1451 2.0372 2.2903  
112.500 .3987 .7297 1.4364 1.3647 1.3085 1.2262 1.1587 1.1814 2.1195 2.6325  
123.000 1.9487 2.5673 2.8924  
135.000 1.2009 1.0957 .8787 1.2404 1.2336 1.1706 1.1837 1.2768 2.4691 2.8669  
157.500 2.0353 2.0918 1.0454 1.1959 1.0642 .9496 1.0124 1.0701 1.2965 1.6576 2.2810 3.2807  
161.000 2.0278  
166.000 1.2430  
180.000 3.8478 2.2104 1.4199 1.0153 1.2750 1.2637 1.1165 1.0421 .9582 .9113 1.3511 1.7323 2.6495 3.3754  
197.000 1.2486 .9193 1.2789 3.3754  
210.000 1.0512  
220.000 1.6345 1.2752  
232.000 1.2916 1.2655

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OF POOR QUALITY

UPWT 1059 (IH4) 01-T15-S8N16 EXTERNAL TANK

(MQ3TAB)

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000	2.9889			
151.000		3.6850		
180.000			3.8294	.4989
210.000			4.5433	

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000 PINF = .66345 Q(PSI) = 4.0415 RN/L = 3.0200 CPSTG = 1.7529

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000				3.3226	2.2378	1.0634									.8395
45.000															.8863
67.500									.6289			.6003			.3491
90.000							.6014	.5432	.6109	2.1046	4.9896	.6154			.3446
112.500									.5973	.6169	1.2375	.6906			.3641
135.000											.6951	1.0226	.7012		.7613
157.500															1.3183
167.000															1.3239
180.000	7.6481	5.6939	5.6666	3.2334	2.2286	1.0679	.6226	.5291		.5291		.6202	1.2091		1.2995
197.000					2.2525	1.1406				.5524					
210.000						1.1275									1.0115
220.000															.6222
225.000												1.1658			
232.000															1.0341

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000								.6938				.5745			
45.000								.5084				.6447			
67.500				.3431				.7067	.7073	.6777	.6313	.6220			.7353
90.000		.2603		.3069		.6816		.7462		.5379	.5245	.5216	.5118		1.0690
112.500		.3069		.4108		.5025		.9876	.9371	.8593	.8280	.7636	.7479		1.3693
123.000													.5953		1.6156
135.000		.7433		.9916		.7222		.6951	.6342	.7839	.7537	.6957	1.3454	1.0458	1.5560
157.500	1.3936	1.4952	.8625	1.1696		.7152		.8058	.6695	.5925	.5395	.8159	1.1077		1.4203
161.000	1.4124														1.6431
166.000				1.1959											
180.000	2.0466	2.0203	1.1602	.9246	.7462	.9013	1.0905	.9169	.8210	.6620	.5578	.7187	1.2625		1.7189
197.000				1.1978						.6506					1.8488
210.000								.8689				.6380			
220.000				1.1865						.8639					
232.000								.5149				.7175			



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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-SBN 6 EXTERNAL TANK

(MQ3TAB)

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000

SECTION ( 1 ) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA  
 123.000 1.9447  
 151.000 1.7511  
 180.000 1.9435 .2751  
 210.000 2.9930

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = .66345 Q(PSI) = 4.0415 RN/L = 3.0200 CPSTG = 1.7529

SECTION ( 1 ) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA  
 .000 3.8777 2.7174 1.3804 1.0534  
 45.000 .8072  
 67.500 .6038  
 90.000 .5945 .5978 .5963 .7273 4.7316 .9231 .3448  
 112.500 .5436 .4984 1.5731 .3975 .1882  
 135.000 .6310 .7138 .7529 .5978  
 157.500 1.0033  
 167.000 .9917  
 180.000 7.5928 5.0890 4.9678 2.5840 1.8129 .8678 .4949 .4250 .5550 .8578 .8830 1.0108  
 197.000 1.8737 .9294 .4774  
 210.000 .9311 .9548  
 220.000 .5007  
 225.000 .9742  
 232.000 .7607

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA  
 .000 .7971 .6874  
 45.000 .7035 .7619 .7327  
 67.500 .6813 .8091 .8225 .7865 .7510 1.2204  
 90.000 .3027 .3117 .8968 .7644 .7342 .8614 1.6591  
 112.500 .1882 .2831 .4382 .7743 .8091 .7720 .7371 .7104 1.0144 1.6171  
 123.000 .7290 1.6682  
 135.000 .5617 .5722 .5565 .6784 .7261 .6970 .7121 1.4928 1.6126  
 157.500 1.1407 1.2272 .6948 .9296 .6346 .6619 .5460 .5099 .6537 .9913 1.2685 1.7553  
 161.000 1.1501  
 166.000 .9005  
 180.000 2.2492 1.7693 1.0390 .7763 .6094 .8733 .8073 .7151 .6328 .5536 .6226 .9653 1.3146 1.8390  
 197.000 .9063 .5529  
 210.000 .6739 .6986  
 220.000 .9082 .8038  
 232.000 .7214 .7531

UPWT 1059 (IH4) 01-T15-S8N16 EXTERNAL TANK

(MQ3TAB)

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000 1.9525

151.000 1.9003

180.000 1.9950 .2736

210.000 3.0530

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -10.000 PINF = .32922 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000

45.000

67.500

90.000

112.500

135.000

157.500

167.000

180.000

197.000

210.000

220.000

225.000

232.000

1.4240 .8339 .3075

.3128

.2866

.3286

1.3516

2.7978

.0915

.3736

.2892

.0848

.0615

.2370

.6691

.4111

1.0007

1.0967

1.2811

1.0308

.9083

1.0496

.9083

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000

45.000

67.500

90.000

112.500

123.000

135.000

157.500

161.000

166.000

180.000

197.000

210.000

220.000

232.000

.0645

.2761

.6091

.9437

.6928

.4638

.8198

.5427

.5869

.7294

.6274

.5449

.6765

.6116

.5767

.6042

.7257

.6852

.5605

.2215

.0866

.1156

.5636

.8342

.8105

.6845

.6434

.5677

.5717

.4665

.8955

1.1221

1.2436

1.1363

1.3479

1.4717

1.4547

.6279

.5605

.2073

.2073

.1769

.3365

.3266

.1734

.3700

.6434

.5677

.5717

.4665

.8955

1.1221

1.2436

1.1363

1.3479

1.4717

1.4547

.6279

.5605

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-S8N16 EXTERNAL TANK

(MQ3TAB)

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -10.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA  
 123.000 1.4479  
 151.000 2.1388  
 180.000 1.8790 .2145  
 210.000 2.1570

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = -5.000 PINF = .32922 Q(P51) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA  
 .000 1.8180 1.1196 .4442 .3391  
 45.000 .2389  
 67.500 .1128  
 90.000 .2256  
 112.500 .3385 .2887 .3233 1.1228 2.9316 .4000 .4271  
 135.000 .3669 .3985 .3910 .6782 .2571  
 157.500 .4135 .3128 .7692  
 167.000 .7788  
 180.000 5.8522 4.6729 4.4356 2.8209 1.9100 .8739 .4887 .3904 .4250 .5000 .6538 .7962  
 197.000 1.8870 .9427 .3885  
 210.000 .9023 .7654  
 220.000 .6288  
 225.000 .7250  
 232.000 .9481

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA  
 .000 .2875 .2335  
 45.000 .1513 .2113 .3439  
 67.500 .1475 .1521 .1862 .2175 .2418 .3499  
 90.000 .1789 .1609 .3563 .3713 .3378 .3285 .2886 .4529  
 112.500 .3083 .3368 .4195 .4783 .5928 .6368 .5460 .5119 .4905 .6252  
 123.000 .3702 .4748 .8762  
 135.000 .5729 .8632 .5985 .4135 .4436 .4639 .4957 .4552 .7114 .8623  
 157.500 .8769 1.0113 .6212 .7538 .4904 .5258 .4837 .4410 .3842 .4052 .6471 1.0285  
 161.000 .9019  
 166.000 .6308  
 180.000 1.4461 1.6361 .5712 .6846 .4673 .5712 .5423 .5284 .5692 .4863 .4295 .3574 .8424 1.1299  
 197.000 .6096 .5041 .4384 1.1566  
 210.000 5.0559 .5495 .4384  
 220.000 .5380 .4512  
 232.000 .4474

UPWT 1059 (IH4) 01-T15-SB16 EXTERNAL TANK

(MQ3TAB)

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = -5.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000 1.1657

151.000 1.2859

180.000 1.2549 .1308

210.000 1.9518

MACH ( 3 ) = 3.700 ALPHA ( 3 ) = .000 PINF = .32922 Q(P5I) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000 2.2504 1.4591 .6171 .4138

45.000 .3322

67.500 .2063

90.000 .2590

112.500 .3246 .2877 .3268 .3389 .3825 .2349

135.000 .3283 .3494 .3539 .4367 .3178

157.500 .3494 .3840 .2696 .5579

167.000 .6023

180.000 5.8352 4.0465 4.3469 2.2707 1.5116 .6505 .3484 .3398 .3398 .4247 .5154 .6062

197.000 1.5079 .6927 .3417

210.000 .6794 .5888

220.000 .4575

225.000 .5869

232.000 .8842

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000 .3042 .2721

45.000 .2395 .3036 .4423

67.500 .1506 .2720 .3154 .3131 .2824 .2957 .5932

90.000 .1566 .1370 .2063 .2859 .2749 .2703 .2992 .7662

112.500 .1747 .1837 .2229 .3316 .4028 .4358 .4207 .4115 .9138

123.000 .3324 .3478 .6360 .8854

135.000 .4428 .6446 .4398 .3409 .3495 .3235 .3628 .3536 .6563 .8420

157.500 .6120 .7741 .4749 .6197 .3900 .4268 .3481 .3285 .2752 .3393 .4914 .8802

161.000 .7432

166.000 .6506

180.000 1.1619 1.3294 .6544 .5425 .3919 .4807 .4710 .4198 .4610 .3900 .3202 .2562 .6652 1.0079

197.000 .7239 .4008 .9949

210.000 .4242 .3190

220.000 4.7096 .4058 .3576

232.000 .2892

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-S8N16 EXTERNAL TANK

(MQ3TAB)

MACH ( 3 ) = 3.700 ALPHA ( 3 ) = .000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA  
 123.000 1.0011  
 151.000 1.0498  
 180.000 1.3235 .1281  
 210.000 1.5172

MACH ( 3 ) = 3.700 ALPHA ( 4 ) = 5.000 PINF = .32922 Q(P51) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA  
 .000 2.7411 1.8578 .8745 .5672  
 45.000 .2471  
 67.500 .3742  
 90.000 .2720  
 112.500 .3311 .3005 .3276 .4012 2.6692 .5951 .1337  
 135.000 .3020 .3005 .4373 .2675 .3216 .3246  
 157.500 .3141 .3035 .5112  
 167.000 .4726  
 180.000 5.8362 3.7744 3.4416 1.7400 1.1723 .4823 .2681 .3125 .2952 .3280 .3723 .5132  
 197.000 1.1935 .5176  
 210.000 .5188 .5074  
 220.000 .3087  
 225.000 .4534  
 232.000 .6193

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA  
 .000 .4224 .3676  
 45.000 .3798 .3621 .4199  
 67.500 .3277 .3428 .3613 .3786 .3995 .4956  
 90.000 .1863 .1563 .2059 .2374 .3543 .4215 .4267 .3949 .8447  
 112.500 .1307 .1352 .1713 .2762 .3329 .3729 .4030 .4099 .4111 .9020  
 123.000 .3653 .6953 .8632  
 135.000 .2449 .2329 .2419 .2901 .2912 .3144 .3150 .3161 .7145 .8192  
 157.500 .4823 .5016 .4244 .4534 .3955 .3451 .2867 .2521 .2232 .3733 .5080 .8762  
 161.000 .4553  
 166.000 .4128  
 180.000 1.1160 .9491 .4302 .3665 .4225 .4514 .4572 .4047 .3508 .3072 .3092 .2290 .3201 .6703 .9082  
 197.000 .4649 .2989  
 210.000 .3579 .3361 .2822  
 220.000 4.3758 .3239  
 232.000 .1905

UPWT 1059 (IH4) 01-T15-S8N.6 EXTERNAL TANK

(MQ3TAB)

MACH ( 3 ) = 3.700 ALPHA ( 4 ) = 5.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000 .9860

151.000 .9910

180.000 1.0964 .1174

210.000 1.4406

MACH ( 4 ) = 4.600 ALPHA ( 1 ) = -10.000 PINF = .16565 Q(P51) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000 .9153 .5053 .1664 .1286

45.000 .0431

67.500 .0556

90.000 .1668

112.500 .1734 .1593 .1878 .7033 1.8342 .2690 .4208

135.000 .2479 .2840 .2900 .6206 .2705

157.500 .3471 .3246 .2810 .6011

167.000 .6069

180.000 4.0612 3.6038 3.2624 2.3298 1.6213 .7616 .4245 .3267 .3054 .3189 .4117 .7287

197.000 1.5781 .8096 .3093

210.000 .7582

220.000 .5799

225.000 .4716

232.000 .4987 .7577

X/LT .4250 .4500 .4750 .5100 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000 .1286 .1168

45.000 .0407 .0614 .1133

67.500 .0896 .0584 .0584 .0740 .0804 .1243

90.000 .1593 .1623 .2014 .3238 .2961 .2579 .2128 .2053 .3100

112.500 .3126 .3306 .4433 .4355 .5372 .4609 .3950 .3730 .3458 .5662

123.000 .2654 .4089 .7819

135.000 .5605 .6792 .4673 .3771 .3516 .3921 .4251 .3718 .5864 .7136

157.500 .6437 .7461 .3885 .3962 .3769 .4730 .3020 .3388 .3166 .3452 .5651 .8372

161.000 .6069

166.000 .3344

180.000 1.4171 1.3889 .4890 .4929 .4214 .4252 .4040 .3172 .2905 .3662 .3452 .3140 .6630 .9828

197.000 .3788 .3767

210.000 .4488 .3490 .9580

220.000 2.6951 .4170 .3306

232.000 .3312

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 481

UPWT 1059 (IH4) 01-T15-S8N16 EXTERNAL TANK

(MQ3TAB)

MACH (4) = 4.600 ALPHA (1) = -10.000

SECTION (1) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA				
123.000	.9322			
151.000		1.3004		
180.000			1.1134	.1189
210.000			1.5268	

MACH (4) = 4.600 ALPHA (2) = -5.000 PINF = .16565 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION (1) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA															
.000				1.2864	.7676	.2701									.1969
45.000															.1148
67.500															.0773
90.000							.1541	.1668	.1880	.1425		.1334			.1668
112.500									.2184	.5520	2.1106	.2927			.2654
135.000										.2396	.2305	.4094			.1911
157.500											.2578	.2684	.1850		.4716
167.000															.4330
180.000	4.4776	3.3802	3.4741	2.0216	1.3407	.5645	.2941	.2281		.2725		.2938	.3808		.4504
197.000					1.3103	.6039				.2629					
210.000						.5738									.4948
220.000															.4175
225.000															
232.000												.3943			.7519

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA															
.000								.1434				.1428			
45.000								.0714				.0749			.1570
67.500				.0561				.0996	.0741	.0712	.0915	.0955			.2061
90.000		.1198		.1016		.1061		.1534		.2478	.2235	.2026	.1858		.2571
112.500		.1850		.1941		.2032		.2866	.2872	.3694	.3422	.3150	.2993		.3364
123.000													.2304	.3034	.5107
135.000		.4200		.5368		.3973		.2669	.2634	.2547	.2959	.2930	.4748		.4881
157.500	.5219	.6224	.3672	.4136		.3151		.3221	.2654	.2775	.2368	.2285	.3895		.6161
161.000	.5605														
166.000				.3982						.3494					
180.000	.8872	1.2063	.3885	.4484	.3054	.2822	.3035	.2852	.2667	.3068	.2743	.2310	.4844		.6747
197.000				.4465						.2992					.6963
210.000								.3011				.2571			
220.000					2.5257					.3323					
232.000								.2406				.2533			

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UPWT 1059 (IH4) 01-T15-S8N15 EXTERNAL TANK

(MQ3TAB)

MACH (4) = 4.600 ALPHA (2) = -5.000

SECTION (1) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000	.7139			
151.000		.7511		
180.000			.7352	.0707
210.000			1.4284	

MACH (4) = 4.600 ALPHA (3) = .000 PINF = .16565 Q(P51) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION (1) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000															
45.000				1.6639	1.0501	.4066									.2537
67.500															.1347
90.000									.1991			.2459			.1252
112.500							.1884	.1825	.1976	.4344	2.0558	.3032			.1689
135.000									.2021	.2097	.1825	.2579			.1403
157.500											.2052	.1554	.1750		.2067
167.000															.4385
180.000	4.4991	3.0672	3.1901	1.6206	1.0621	.4098	.2063	.2241		.2125			.2260	.2608	.3226
197.000					1.0465	.4474				.2105					.3245
210.000						.4370									.3303
220.000															.2646
225.000													.3187		
232.000															.6818

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000								.1651				.1633			
45.000								.1254				.1447			.2007
67.500				.0815				.1484	.1403	.1281	.1350	.1374			.2712
90.000		.0996		.1116		.1101		.1403		.1675	.1675	.1687	.1687		.2904
112.500		.1312		.1071		.1237		.1571	.1530	.1860	.2237	.2446	.2498		.4196
123.000													.1860	.2585	.4712
135.000		.2564		.3002		.2579		.2150	.1953	.1971	.1826	.1733	.3020		.4185
157.500	.3303	.3380	.2936	.2975		.2917		.2436	.2011	.2024	.1776	.1580	.2144		.5114
161.000	.3033														
166.000				.3535											
180.000	.8170	.7803	.3805	.3226	.2202	.2530	.2743	.2246	.2417	.2265	.2011	.1605	.3026		.5919
197.000				.4018						.2335					.5754
210.000								.2405				.1802			
220.000				2.3499						.2309					
232.000								.1370				.1757			



DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 483

UPWT 1059 (IH4) 01-T15-S8N11; EXTERNAL TANK

(MQ3TAB)

MACH ( 4) = 4.600 ALPHA ( 3) = .000

SECTION ( 1)EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA				
123.000	.6057			
151.000		.6966		
180.000			.7601	.0641
210.000			.9942	

MACH ( 4) = 4.600 ALPHA ( 4) = 5.000 PINF = .16565 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1)EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA														
.000				2.0770	1.3814	.5796								.3278
45.000														.1418
67.500														.2444
90.000							.1830	.1765	.1946	.5084		.4088		.1916
112.500								.1795	.1780	.1916	1.8365	.1629		.0935
135.000										.1765		.1810	.1855	.1825
157.500														.4327
167.000														.2414
180.000	4.5213	2.8828	2.4835	1.2038	.8028	.2919	.1689	.1874		.1816		.1796	.1854	.2917
197.000					.8093	.3244				.1816				
210.000						.3186								.2241
220.000														.1796
225.000												.2685		
232.000														.4539

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA														
.000								.2413				.2071		
45.000								.2083				.1877		.2501
67.500				.1765				.2002	.1897	.1938	.2013	.2031		.3041
90.000		.1222		.1116		.1252		.1329		.1532	.1555	.1735	.2013	.4126
112.500		.0950		.0935		.0935		.1381	.1317	.1497	.1723	.1955	.2350	.4596
123.000													.2275	.4282
135.000		.1297		.0860		.0845		.1213	.1445	.1741	.1752	.1538	.3238	.4381
157.500	.2086	.2009	.2260	.2105		.2453		.2014	.1648	.1417	.1154	.1244	.2065	.4637
161.000	.1719													
166.000				.2453						.1635				
180.000	.7359	.4887	.3090	.2028	.2646	.2820	.2762	.2290	.1931	.1597	.1219	.1180	.3098	.5125
197.000				.2723						.1494				.5259
210.000								.1860				.1296		
220.000				2.1862						.1854				
232.000								.0904				.1405		

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 484

UPWT 1059 (IH4) 01-T15-S8N1E EXTERNAL TANK

(MQ3TAB)

MACH ( 4 ) = 4.600 ALPHA ( 4 ) = 5.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000

.5623

151.000

.5753

180.000

.5548

.0481

210.000

.7575

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 485

UPWT 1059 (IH4) 01-T15-S8N16 SOLID RCKT. BSTR.

(MQ3SAB) ( 15 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 3.000 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = 1.1965 Q(P51) = 4.6665 RN/L = 3.0000 CPSTG = 1.7063

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	9.2114		2.1420	2.1614		2.1578							1.0365		
180.000				2.1972		2.2123					.9134		1.6623		
225.000										1.0243			1.6463		1.1897
247.500												.9765	1.5241	1.2275	1.1373
260.000								6.3339							
270.000		2.9990	2.2650	1.8434	2.2951	6.7828	7.7112		.4906	.6715	.3966	.9976	.9569	.9252	.9011
315.000											.7444				

X/LSRB .7000 .7800 .8000 .9000 .9100 .9200 .9250 .9300 .9400 .9500 .9600 .9900

PSI															
90.000	1.1709	1.7053	.9081					2.0446				1.9544			
180.000	1.0879	3.5315	2.5825	.9666				2.0686			1.5302	1.0380			
210.000					.9633	3.3706		1.1348		.6395					
215.000							.8175		.3425		.1779				
225.000		5.1443	.7272	.5024				1.0138			.5472				
240.000								.9660			.7412	.8013			
247.500	1.7350														
270.000	1.5241	3.4598	.6507	.7051				.9881				2.1973			
315.000	1.0821														

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = 1.1965 Q(P51) = 4.6665 RN/L = 3.0000 CPSTG = 1.7063

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	9.1073		2.0522	2.0928		2.0959							.9212		
180.000				1.7210		1.7116					.7117		1.5329		
225.000										.4601			1.3918		1.1373
247.500												.8996	1.5401	1.2856	1.1548
260.000								5.6188							
270.000		3.0075	2.2593	1.8208	2.2330	6.5626	7.7010		.4949	.4322	.4288	.6458	1.5154	1.3147	1.1868
315.000												1.0384			

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UPWT 1059 (IH4) 01-T15-S8N16 SOLID RCKT. BSTR.

(MQ3SAB)

MACH ( 1 ) = 2.360      ALPHA ( 2 ) = 5.000

## SECTION (1) SOLID RCKT. BSTR

## DEPENDENT VARIABLE PL

[illegible]

MACH ( 2 ) = 2.950    ALPHA ( 1 ) = .000    PINF = .66345    Q(PSI) = 4.0415    RN/L = 3.0200    CPSTG = 1.7529

## SECTION (1) SOLID RCKT. BSTR

## DEPENDENT VARIABLE PL

[illegible]

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-SBN'6 SOLID RCKT. BSTR.

(MQ3SAB)

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = .66345 Q(PSI) = 4.0415 RN/L = 3.0200 CPSTG = 1.7529

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	8.2294		1.3820	1.4123		1.4305							.5052		
180.000			1.1708			1.0917					.3494		.7359		
225.000										.3507			.6961		.7330
247.500												.2537	.9070	.8436	.7507
260.000								4.8245							
270.000		2.4623	1.7599	1.3176	1.5641	1.8701	7.6628		.4920	.3873	.3223	.3377	.8023	.8451	.7551
315.000											.5914				
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900			
PSI															
90.000	.7190	1.3513	.6542					1.2176				.9333			
180.000	.6946	2.4931	1.0219	.8158				1.4267			1.2875	.9725			
210.000					.6205	1.8910		.8224		.5195					
215.000							.3459		.1750		.1225				
225.000		1.8855	1.1106	.3608				.6191			.3809				
240.000								.4563			.3311	.4056			
247.500	1.1803														
270.000	1.0712	1.7046	.3419	.3096				.4615				1.1173			
315.000	.6710														

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -10.000 PINF = .32922 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	6.8019		.8716	.8386		.8542							.1243		
180.000			1.9041			1.7008					.6226		.8965		
225.000										.6700			.8950		.5987
247.500												.4725	.9200	.6779	.5414
260.000								5.8888							
270.000		1.9309	1.3056	.9218	.8063	1.3591	3.4055		.2819	.2123	.2460	.2744	.5165	.4035	.3023
315.000											.0866				
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900			
PSI															
90.000	.1231	.3794	.1270					.2628				.1686			
180.000	.4857	1.4735	1.5810	.4845				.9541			.6292	.4109			
210.000					.6100	1.7434		.5442		.3345					
215.000							.5209		.1782		.0960				
225.000		2.0964	.7849	.2572				.5552			.2097				
240.000								.2892			.1590	.1081			

UPWT 1059 (IH4) 01-T15-S8N16 SOLID RCKT. BSTR.

(MQ3SAB)

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -10.000

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
PSI												
247.500	.5003											
270.000	.2949	1.9377	.1688	.0988				.1137				.5507
315.000	.1585											

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = -5.000 PINF = .32922 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	7.0401		.9119	.9004		.9075								.2245	
180.000				1.4743		1.2880					.4120			.5521	
225.000										.5348				.7430	.5786
247.500												.2790		.5698	.5360
260.000								3.8502							
270.000		1.9541	1.3501	.9385	.8212	1.3038	2.7374		.2648	.2753	.2211	.1674	.2981	.3554	.2922
315.000											.0837				

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
PSI												
90.000	.1963	.4216	.1585					.3102				.2713
180.000	.3877	1.1963	1.4028	.4074				.6425			.5767	.3611
210.000					.4055	1.3460		.5370		.3014		
215.000							.4753		.1699		.0890	
225.000		1.2168	.9512	.1620				.4589			.2041	
240.000								.1548			.1603	.1528
247.500	.4214											
270.000	.2628	2.0565	.1916	.1093				.1417				.5528
315.000	.2364											

MACH ( 3 ) = 3.700 ALPHA ( 3 ) = .000 PINF = .32922 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	7.0828		.9201	.9252		.9271								.2879	
180.000				1.0922		.9344					.2515			.2809	
225.000										.3829				.4147	.4588
247.500												.1691		.3779	.4338
260.000								3.1744							
270.000		1.9762	1.3802	.9498	.9730	1.2816	2.9252		.2797	.3951	.2169	.1500	.2838	.2809	.2765

TABULATED SOURCE DATA - 1H4

UPWT 1059 (1H4) 01-T15-S8N13 SOLID RCKT. BSTR.

(MQ3SAB)

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
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PSI  
315.000

.1618

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
--------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

PS I'

90.000	.2879	.7832	.2622	.4935	.5983
--------	-------	-------	-------	-------	-------

180.000	.3529	1.1400	1.2594	.4230		.6214		.6379	.4852
---------	-------	--------	--------	-------	--	-------	--	-------	-------

210.000	.3676	1.1548	.4801	.3032
215.000			3086	1304
				0737

215.000					.3086		.1344	.0727
225.000	2.7613	3.182	1716			3813		1907

225.000	2.7613	.3182	.1716	.3813	.1967
240.000				.2016	.1756 .1605

E 76.89
247.500      .3632

270.000	.3735	1.8875	.1993	.1447		.1957	.5445
---------	-------	--------	-------	-------	--	-------	-------

315.000 .3926

MACH ( 3 ) = 3.700    ALPHA ( 4 ) = 5.000    PINF = .32922    Q(PSI) = 3.1550    RN/L = 3.0000    CPSTG = 1.7839

SECTION (1) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
--------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

PS I

90.000	6.9524	.8806	.8896	.8986	.2532
--------	--------	-------	-------	-------	-------

180.000	.7832	.6887	.1458	.2723
---------	-------	-------	-------	-------

225.000		.2516	.2693	.4121
787.500			1571 2700 7450	4396

247.500						.1531	.2399	.3459	.4386
360.000						3.4655			

260.000						3.4655							
270.000	1.9841	1.3833	.9453	.9588	1.3372	2.7880	.2778	.2848	.2269	.1692	.2252	.3032	.4268

278.000	1.5371	1.5355	1.5355	1.5355	1.5372	2.7800	1.2778	1.2878	1.2255	1.1052	1.2252	1.0052	1.1252
315.000										.2958			

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
--------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

PS I

90.000	.3195	.8595	.4734		.6677		.6344
--------	-------	-------	-------	--	-------	--	-------

180.000	.3694	.8508	.7338	.5029		.8734		.8939	.7076
---------	-------	-------	-------	-------	--	-------	--	-------	-------

210.000	.3436	1.3583	.5092	.3450
215.000				

215,000					.3491		.1437	.0794
225,000	1,3560	4839	1843			4134		2149

225.000	1.3580	.4839	.1843	.4134	.2149
240.000				.2300	.1821 .1963

270.800						12500		11021	11559
247.500	.4047								

270.000	.3944	1.4926	.2149	.1278	.1371	.5381
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315.000 .3665

UPWT 1059 (IH4) 01-T15-S8N16 SOLID RCKT. BSTR.

(MQ3SAB)

MACH (4) = 4.600 ALPHA (1) = -10.000 PINF = .16565 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

## SECTION (1) SOLID RCKT. BSTR

## DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	5.6518		.5772	.5429		.5575							.0602		
180.000			1.3833			1.2120					.3652		.5435		
225.000										.4707			.6192		.3608
247.500												.2777	.5212	.4722	.3475
260.000								2.1548							
270.000		1.5062	.9974	.6533	.4929	.9747	1.3936		.1721	.1545	.1698	.1574	.2955	.2777	.2019
315.000												.0535			
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900			
PSI															
90.000	.0478	.2863	.0755					.1690				.1074			
180.000	.3088	.9080	.8026	.3101				.6083			.4698	.3213			
210.000					.3788	1.1580		.4562							
215.000							.3775		.1439	.2865					
225.000		1.0846	.5286	.1831				.3544			.0787				
240.000								.1724			.1168	.0869			
247.500	.3059														
270.000	.1812	1.3099	.1194	.0467				.0467				.3315			
315.000	.0802														

MACH (4) = 4.600 ALPHA (2) = -5.000 PINF = .16565 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

## SECTION (1) SOLID RCKT. BSTR

## DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	6.0734		.6136	.5945		.5989							.1077		
180.000			1.0746			.9027					.2108		.1879		
225.000										.3424		.1551	.2685		.3430
247.500													.2476	.3744	.3251
260.000								1.5762							
270.000		1.5796	1.0482	.6765	.5857	.9312	1.3526		.1747	.1765	.1441	.0955	.1148	.2148	.1760
315.000												.0477			
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900			
PSI															
90.000	.1035	.3337	.0961					.1910				.1594			
180.000	.2297	.7582	.8753	.2623				.4092			.3807	.2457			
210.000					.2678	.9245		.3685							
215.000							.3345		.1237	.1931		.0693			
225.000		.7774	.6988	.1251				.2746			.1428				
240.000								.1101			.1006	.0862			



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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-S8N1E SOLID RCKT. BSTR.

(MQ3SAB)

MACH ( 4 ) = 4.600 ALPHA ( 2 ) = -5.000

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
PSI												
247.500	.2565											
270.000	.1566	1.2382	.1310	.0640				.0797				.3309
315.000	.1134											

MACH ( 4 ) = 4.600 ALPHA ( 3 ) = .000 PINF = .16565 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	6.2314		.6338	.6294		.6275							.1517		
180.000				.7919		.6471							.1327		
225.000										.2116			.1163		.2534
247.500												.1565	.1803	.2131	.2534
260.000								1.5891							
270.000		1.6523	1.0965	.6973	.7185	.9444	1.3314		.1766	.2763	.1433	.1163	.1177	.1177	.1163
315.000											.0805				

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
PSI												
90.000	.1680	.5596	.1626					.2840				.2868
180.000	.2027	.7485	.7048	.2357				.3801			.3106	.2701
210.000					.1826	.7384		.2725		.1921		
215.000							.1975		.0817		.0531	
225.000		1.0003	.2536	.1021				.1390			.1008	
240.000								.0926			.0845	.1049
247.500	.2325											
270.000	.1640	1.0003	.1137	.0724				.0826				.3295
315.000	.1654											

MACH ( 4 ) = 4.600 ALPHA ( 4 ) = 5.000 PINF = .16565 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	6.0983		.5990	.5933		.6003							.1130		
180.000				.5447		.4752							.1466		
225.000										.1327			.1252		.1741
247.500												.1084	.1206	.1206	.1557
260.000								1.9322							
270.000		1.6676	1.1115	.6992	.6780	.9724	1.4270		.1903	.1955	.1539	.1099	.1176	.1176	.1496

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 492

UPWT 1059 (IH4) 01-115-S8N16 SOLID RCKT. BSTR.

(MQ3SAB)

MACH (4) = 4.600 ALPHA (4) = 5.000

SECTION (1) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
315.000															.1680
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900			
PSI															
90.000	.1359	.5168	.2252					.3534							.3422
180.000	.2229	.3230	.2357	.2695				.5449			.5518				.4532
210.000					.1594	.8188		.4046							
215.000							.2262			.2262					
225.000		.8328	.2863	.1212					.0995		.0613				
240.000								.1635			.1580				
247.500	.2306							.1076			.1144				.1156
270.000	.2046	1.2444	.1589	.0615											
315.000	.1954							.0681							.3301

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-S8N16 ORBITER FUSELAGE

(MQ3BAC) ( 15 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 5.000 BETA = .000

MACH ( 1 ) = 2.950 ALPHA ( 1 ) = .000 PINF = 1.1042 Q(PSI) = 6.7266 RN/L = 5.0200 CPSTG = 1.7529

## SECTION ( 1 ) ORBITER FUSELAGE

## DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	11.2305	5.8253	2.6047	2.8334			2.7310	3.8410	10.5892		.7107				
10.000									5.7371						
20.000									3.6131						
24.500									2.9442						
39.000									2.5033						
163.000														5.3372	
174.000															
180.000	11.2305				3.6254			3.0944	3.0613	3.3316	7.7161	8.5785	8.4640		7.8423
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	1.9462	1.4043	1.3962	1.1257	.7866		3.0030				.3360		.2513	.2791	
23.000		1.3075													
24.000		1.6193													
31.500		1.6000													
33.100			1.4559												
35.000		1.4989													
40.000		1.7892	1.5785												
45.000			1.6150												
50.000	2.1054														
51.600															
57.000		1.2267											1.1264		
60.900		1.2632													
65.000		1.2606													
68.000														.8151	
69.000		1.2573													
79.300					.8569										
95.500					.9233		.9535								
95.700			1.3139												
96.300	1.6877														
103.000					.9452										
105.000															.4514
112.600					.9672										
117.500															
120.800								1.9691				1.0333		1.0704	
127.900						4.5179									
129.500									3.4653						

ORIGINAL PAGE IS  
 OF POOR QUALITY



UPWT 1059 (1H4) 01-T15-S8N16 ORBITER FUSELAGE

(MQ3BAC)

MACH ( 1 ) = 2.950      ALPHA ( 2 ) = 5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------

PHI								
69.000		.9213						
79.300			.6315					
95.500			.6569		.8493			
95.700		1.2091						
96.300	1.7716							
103.000			.6630					
105.000								.4336
112.600			.6774					
117.500						.9398		.9302
120.800					1.6167			
127.900				1.8817				
129.500					2.0464			
130.000						1.9599	1.1898	1.0978
135.000		.5000	.7706					
139.600						2.1918		
144.000								1.2111
155.000	2.2208							
180.000	1.5965	.6333	.9582					

X/LB	1.0250	1.0500
------	--------	--------

PHI			
.000	.3290	.5431	

MACH ( 2 ) = 3.700    ALPHA ( 1 ) = -5.000    PINF = .54730    Q(PSI) = 5.2445    RN/L = 4.9900    CPSTG = 1.7839

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

[illegible]

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------

PHI									
.000	1.6603	.8275	.9583	.8670	.6742	2.1044			
23.000		.8779					.2326	.1217	.1121



TABULATED SOURCE DATA - 1H4

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UPWT 1059 (IH4) 01-T15-S8N16 ORBITER FUSELAGE

(MQ3BAC)

MACH ( 2 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .54730 Q(PSI) = 5.2445 RN/L = 4.9900 CPSTG = 1.7839

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

[illegible]

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.3000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------

PHI										
.000	1.0679	.7662	.8143	.6835	.5468	1.7080		.2225	.1624	.1671
23.000		.8831								
24.000	.7825									
31.500	.7192									
33.100		.9990								
35.000	.6737									
40.000	.8312	.9497								
45.000		.9270								
50.000	.9529									
51.600									.4807	
57.000		.7298								
60.900		.7305								
65.000		.7271								
68.000									.3646	
69.000		.6751								
79.300					.4706					
95.500					.4881	.4322				
95.700		.5300								
96.300	.8844									
103.000					.4908					
105.000										.1809
112.600					.4881					
117.500								.5178	.5442	
120.800							1.2316			
127.900					2.4793					
129.500						2.2723				
130.000							1.7202	.8256	.5671	
135.000		.3241			.5374					
139.600							1.5785			
144.000								.8399		
155.000	1.8601									
180.000	1.4400	.4597			.4772					

UPWT 1059 (IH4) 01-T15-S8N16 ORBITER FUSELAGE

(MQ3BAC)

MACH ( 2 ) = 3.700 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB 1.0250 1.0500

PHI

.000 .1856 .2219

MACH ( 3 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .27620 Q(PSI) = 4.0904 RN/L = 5.0000 CPSTG = 1.8033

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB .0000 .0050 .0200 .0400 .0500 .0600 .0800 .1000 .1250 .1500 .1600 .1650 .1700 .1750 .1800

PHI

.000 8.8226 4.0626 1.4974 1.4086 1.3813 .3342 4.5647 .5595

10.000

2.8841

20.000

.9001

24.500

.9520

39.000

.9991

163.000

4.2147

174.000

180.000

8.8226

2.5824

2.1150

2.0864

2.3183

6.3048

7.5418

7.3688

6.7900

X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8000 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI

.000 1.0389 .5368 .6237 .6283 .4398 1.3645 .1584 .0804 .0798

23.000

24.000

31.500

33.100

35.000

40.000

45.000

50.000

51.600

57.000

60.900

65.000

68.000

69.000

79.300

95.500

95.700

96.300

103.000

105.000

112.600

117.500

120.800

1.0389

.5368

.6237

.6283

.4398

1.3645

.1584

.0804

.0798

.7185

.6617

.5190

.6244

.5158

.5336

.7396

.3432

.4565

.4240

.4095

.2617

.3812

.3999

.4144

.5363

.7210

.3695

.4006

.3439

1.2915

.4586

.4572

.0946



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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-S8N16 ORBITER FUSELAGE

(MQ38AC)

MACH ( 3 ) = 4.600 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
127.900						1.2804									
129.500								1.6356							
130.000									1.6328	.8592		.4551			
135.000		.2673			.3080										
139.600								1.6015							
144.000												.5760			
155.000	1.9320														
180.000	1.4650	.3637			.3895										

X/LB 1.0250 1.0500

PHI

.000 .0768 .0846

MACH ( 3 ) = 4.600 ALPHA ( 2 ) = .000 PINF = 27620 Q(PSI) = 4.0904 RN/L = 5.0000 CPSTG = 1.8033

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	7.0510	3.4004	1.6373	1.2106		1.3164	.8775	5.0639		.2952					
10.000								2.1105							
20.000								1.6387							
24.500								1.2261							
39.000								.8985							
163.000													2.9933		
174.000															
180.000	7.0510				1.7874			1.4295	1.4203	1.5756	4.2147	5.2019	5.3488		5.2539

X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8000 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI

.000	.7250	.4168	.4549	.4385	.3296		.9743			.1159		.0631	.0691
23.000		.4509											
24.000	.3487												
31.500	.3390												
33.100		.5287											
35.000	.3584												
40.000	.4687	.6293											
45.000		.6877											
50.000	.6390												
51.600												.2074	
57.000		.3542											
60.900		.3508											

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OF POOR QUALITY

UPWT 1059 (IH4) 01-T15-S8N16 ORBITER FUSELAGE

(MQ3BAC)

MACH ( 3 ) = 4.600 ALPHA ( 2 ) = .000

## SECTION (1) ORBITER FUSELAGE

## DEPENDENT VARIABLE PL

[illegible]

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UPWT 1059 (IH4) 01-T13-S8N16 ORB. UPPER WING

(MQ3UAC) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 5.000 BETA = .000

MACH ( 1 ) = 2.950 ALPHA ( 1 ) = .000 PINF = 1.1042 Q(PSI) = 6.7266 RN/L = 5.0200 CPSTG = 1.7529

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	2.0088		
.200	.9498	1.1171	1.7852
.600	.3937	.3763	
.800		.2892	
.900		1.8015	.5107
.950		.4659	

MACH ( 1 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = 1.1042 Q(PSI) = 6.7266 RN/L = 5.0200 CPSTG = 1.7529

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	1.8969		
.200	.7009	.8752	1.3530
.600	.2152	.2378	
.800		.2253	
.900		1.8027	.3492
.950		.4038	

MACH ( 2 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .54730 Q(PSI) = 5.2445 RN/L = 4.9900 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	1.5532		
.200	.6936	.8603	1.4468
.600	.2421	.2427	
.800		.2146	
.900		.9199	.3702
.950		.3111	

UPWT 1059 (IH4) 01-T15-S8N16 ORB. UPPER WING

(MQ3UAC)

MACH ( 2) = 3.700 ALPHA ( 2) = .000 PINF = .54730 Q(PSI) = 5.2445 RN/L = 4.9900 CPSTG = 1.7839

SECTION ( 1) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	1.2150		
.200	.4947	.6570	1.1248
.600	.1519	.1822	
.800		.1490	
.900		.9090	.2805
.950		.2421	

MACH ( 3) = 4.600 ALPHA ( 1) = -5.000 PINF = .27620 Q(PSI) = 4.0904 RN/L = 5.0000 CPSTG = 1.8033

SECTION ( 1) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	1.0618		
.200	.4308	.5884	1.0807
.600	.1366	.1744	
.800		.1354	
.900		.5752	.2882
.950		.2001	

MACH ( 3) = 4.600 ALPHA ( 2) = .000 PINF = .27620 Q(PSI) = 4.0904 RN/L = 5.0000 CPSTG = 1.8033

SECTION ( 1) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.7444		
.200	.2736	.3829	.7412
.600	.0818	.0982	
.800		.0976	
.900		.5559	.1812
.950		.1543	

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UPWT 1059 (IH4) 01-T15-S8N16 ORB. LOWER WING

(MQ3LAC) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 5.000 BETA = .000

MACH ( 1 ) = 2.950 ALPHA ( 1 ) = .000 PINF = 1.1042 Q(P51) = 6.7266 RN/L = 5.0200 CPSTG = 1.7529

## SECTION ( 1 ) ORB. LOWER WING

## DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						4.6920		5.2109		.8062
.001		1.0752	.9325		2.9291	2.0409	4.7927	1.7757		
.002						1.5591		1.6303		
.003						5.3440		5.4174		
.004						2.6525		2.3033		
.005						1.7462		1.6230		
.025				1.1913	1.6925		1.3108			
.045				1.1913						
.100						1.4495		1.6774	1.7226	
.153	.9114									
.177					1.4194					
.200				1.6768						
.299	.9719									
.302				1.5648			1.5503			
.428						1.5968				
.444	.9177									
.487					2.5232					
.559				2.6904						
.600						2.3734				
.700						2.5792				
.736	3.1514									
.800						2.4164				
.850						1.9334				
.900				.8786		1.4282	1.7197		.7487	

MACH ( 1 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = 1.1042 Q(P51) = 6.7266 RN/L = 5.0200 CPSTG = 1.7529

## SECTION ( 1 ) ORB. LOWER WING

## DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						5.3696		5.5710		.4954
.001		.8364	.8348		4.2873	2.4330	5.4703	2.4824		
.002						1.9560		2.2585		
.003						5.8628		5.0607		
.004						3.1440		3.1345		
.005						2.1485		2.2890		

UPWT 1059 (IH4) 01-T15-S8N16 ORB. LOWER WING

(MQ3LAC)

MACH (1) = 2.950 ALPHA (2) = 5.000

SECTION (1) ORB. LOWER WING				DEPENDENT VARIABLE PL						
2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.025				2.1742	2.2875		2.5827			
.045				2.2640						
.100						1.8475		2.4223	2.4351	
.153	.8267									
.177					1.6405					
.200				1.5125						
.299	.8086									
.302				1.6259			2.1520			
.428						1.8382				
.444	1.6332									
.487					3.1121					
.559				3.2895						
.600						3.2619				
.700						3.8697				
.736	3.4277									
.800						3.1353				
.850						2.4081				
.900				.7958		1.7467	2.6391		1.1870	

MACH (2) = 3.700 ALPHA (1) = -5.000 PINF = .54730 Q(PS1) = 5.2445 RN/L = 4.9900 CPSTG = 1.7839

SECTION (1) ORB. LOWER WING				DEPENDENT VARIABLE PL						
2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						2.7886		3.6744		.5283
.001		.8388	.6714		2.3184	.8518	2.5883	.8640		
.002						.5982		.7110		
.003						4.1233		4.4663		
.004						1.1911		1.1327		
.005						.6974		.7389		
.025				.6681	.6454		.7852			
.045				.6795						
.100						.6131		.7218	.8080	
.153	.8161									
.177					.4622					
.200				.5958						
.299	.6786									
.302				.8449			.8125			
.428						.9097				
.444	.6580									
.487					1.7309					
.559				1.6684						
.600						1.5113				

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UPWT 1059 (IH4) 01-T15-SBN16 ORB. LOWER WING

(MQ3LAC)

MACH ( 2 ) = 3.700 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.700						1.4275				
.736	2.2966									
.800						1.3742				
.850						1.1396				
.900				.2741		.8676	.6941		.4700	

MACH ( 2 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .54730 Q(PSI) = 5.2445 RN/L = 4.9900 CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						2.7292		3.7464		.4448
.001		.6640	.5260		1.9816	.8604	3.1729	1.1187		
.002						.5828		.9319		
.003						3.6986		4.0007		
.004						1.2290		1.5909		
.005						.6932		.9363		
.025				.6445	.6429		.9578			
.045				.6559						
.100						.5976		.9610	1.0890	
.153	.5666									
.177					.4542					
.200				.4601						
.299	.5718									
.302				.5512			.8305			
.428						.9555				
.444	.5115									
.487					1.3005					
.559				1.2874						
.600						1.3063				
.700						1.2591				
.736	1.5724									
.800						1.3028				
.850						1.1514				
.900				.3099		.9196	.9101		.4301	

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UPWT 1059 (1H4) 01-T 5-SBN16 ORB. LOWER WING

(MQ3LAC)

MACH (3) = 4.600    ALPHA (1) = -5.000    PINF = 27620    Q(PS1) = 4.0904    RN/L = 5.0000    CPSTG = 1.8033

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				2.1920	3.0573		.3341
.001	.5660	.4509	1.7674	.6309	2.5760	.7371	
.002				.4184		.5685	
.003				3.1512		3.6495	
.004				.9500		.9829	
.005				.4963		.6130	
.025		.4493	.4979		.6033		
.045		.4444					
.100				.3995		.5741	.6212
.153	.5433						
.177			.2912				
.200		.3371					
.299	.4214						
.302		.3647			.4521		
.428				.5164			
.444	.4337						
.487			.9624				
.559		1.0560					
.600				.9440			
.700				.7643			
.736	1.4733						
.800				.8309			
.850				.7313			
.900		.2046		.5801	.5477		.2762

MACH ( 3 ) = 4.600    ALPHA ( 2 ) = .000    PINF = .27620    Q(PSI) = 4.0904    RN/L = 5.0000    CPSTG = 1.8033

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				1.9445		2.8559		.2595
.001	.4330	.3244	1.4248	.5952	2.3029	.7561		
.002				.3844		.5906		
.003				2.6084		3.1187		
.004				.8905		1.0389		
.005				.4655		.6204		
.025		.3763	.4541		.6325			
.045		.3714						
.100				.3702		.6147	.7088	
.153	.3714							
.177			.2759					
.200		.2893						
.299	.2923							



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UPWT 1059 (IH4) 01-T15-SBN16 ORB. LOWER WING

(MQ3LAC)

MACH ( 3 ) = 4.600 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORB. LOWER WING		DEPENDENT VARIABLE PL								
2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.302				.3117			.4981			
.428						.6219				
.444	.2923									
.487					.7308					
.559				.8495						
.600						.7144				
.700						.6853				
.736	1.0269									
.800						.7112				
.850						.6878				
.900				.2379		.5989	.5226		.2471	

UPWT 1059 (IH4) 01-T15-S8N16 ORB. VERT. TAIL

(MQ3VAC) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 5.000 BETA = .000

MACH ( 1 ) = 2.950 ALPHA ( 1 ) = .000 PINF = 1.1042 Q(PSI) = 6.7266 RN/L = 5.0200 CPSTG = 1.7529

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	5.9994	5.8082	4.8473	5.9533
.300	2.7109	2.1070	1.7772	
.500		2.3733		
.700		1.0266		
.900	.7375	.8816	1.0129	

MACH ( 1 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = 1.1042 Q(PSI) = 6.7266 RN/L = 5.0200 CPSTG = 1.7529

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	4.9480	4.9497	3.8609	4.7501
.300	2.2704	1.5707	1.3696	
.500		1.8712		
.700		.8283		
.900	.5660	.7031	.7795	

MACH ( 2 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .54730 Q(PSI) = 5.2445 RN/L = 4.9900 CPSTG = 1.7830

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	5.1183	4.3912	3.9918	5.2377
.300	1.8195	1.1426	1.0283	
.500		1.6136		
.700		.8200		
.900	.5212	.7230	.5073	

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UPWT 1059 (IH4) 01-TIE-SBN16 ORB. VERT. TAIL

(MQ3VAC)

MACH ( 2 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .54730 Q(PSI) = 5.2445 RN/L = 4.9900 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	4.4359	3.8010	3.3112	3.9102
.300	1.4614	1.0191	.8464	
.500		1.2088		
.700		.6311		
.900	.4211	.5425	.4479	

MACH ( 3 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .27620 Q(PSI) = 4.0904 RN/L = 5.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	3.2058	3.1051	3.1495	4.1513
.300	.8381	.6545	.6353	
.500		.7943		
.700		.4823		
.900	.3042	.4230	.2604	

MACH ( 3 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .27620 Q(PSI) = 4.0904 RN/L = 5.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	3.0249	2.8849	2.1288	2.8832
.300	.7064	.5130	.4739	
.500		.5556		
.700		.2901		
.900	.2403	.2757	.1952	





UPWT 1059 (IH4) 01-T15-38N16 EXTERNAL TANK

(MQ3TAC)

MACH (1) = 2.950 ALPHA (2) = 5.000

SECTION (1) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .0250 .9350 .9370 .9750

THETA

123.000 3.3691

151.000 3.2121

180.000 2.9378 .4550

210.000 5.2540

MACH (2) = 3.700 ALPHA (1) = -5.000 PINF = .54730 Q(P51) = 5.2445 RN/L = 4.9900 CPSTG = 1.7839

SECTION (1) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2100 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000 3.0328 1.8670 .7410

45.000 .6544

67.500 .4562

90.000 .1942

112.500 .5062 .4049 .4531 .4546 .3417 .3854

135.000 .4727 .6955 1.1150 1.2319 .7346

157.500 .8144 1.0960 .7376 .4983

167.000 1.2995

180.000 9.7060 7.7808 7.3848 4.6697 3.1551 1.4375 .8078 .6431 .6354 .6373 .8362 1.3560

197.000 3.1367 1.5788

210.000 1.5158

220.000 1.2468

225.000 1.0097

232.000 1.2299 1.3748

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000 .5094 .3696

45.000 .2749 .3784 .6404

67.500 .2339 .2455 .3289 .3799 .4250 .6213

90.000 .3056 .2770 .3267 .6155 .5825 .5553 .4986 .4592 .9606

112.500 .5088 .5254 .7030 .7614 1.0754 .9537 .9236 .8112 .8020 1.4590

123.000 1.0521 1.3592 .8415 .7875 .6786 .8547 .8454 .8002 1.3955 1.5992

135.000 1.5442 1.9545 .9695 1.1640 .8536 .9977 .8102 .7605 .7018 .8657 1.1380 1.4653

157.500 1.4576 .7146 .9046 .8466 1.0299 .8019 .7669 .6335 1.3704 1.8761

166.000 2.6001 2.7789 1.0662 1.1734 .8517 1.1264 .8600 .7751 1.7899

180.000 .9000

197.000 3.2833 .9315 .7930

210.000

220.000

232.000

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UPWT 1059 (IH4) 01-T1E-S8N16 EXTERNAL TANK

(MQ3TAC)

MACH (2) = 3.700 ALPHA (1) = -5.000

SECTION (1) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000	1.9113			
151.000		2.3125		
180.000			2.0921	.2373
210.000			3.2102	

MACH (2) = 3.700 ALPHA (2) = .000 PINF = .54730 Q(PST) = 5.2445 RN/L = 4.9900 CPSTG = 1.7839

SECTION (1) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000			3.7500	2.4195	1.0325										.7542
45.000															.6122
67.500															.3713
90.000							.5424	.4495	.5261	1.7833	5.5617		.6795		.4374
112.500									.4329	.5637	.9064		.7697		.3999
135.000											.5577		.8358	.5487	.5201
157.500															1.1476
167.000															1.1852
180.000	9.6363	6.7110	7.0677	3.7178	2.4775	1.0632	.5728	.4590		.4494			.5323	1.0761	1.1495
197.000					2.4931	1.1637				.4609					
210.000						1.1404									1.0234
220.000															.7232
225.000												1.0196			
232.000															1.3414

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000								.5965				.4603			
45.000								.4144				.5197			.7333
67.500				.2811				.4079	.5282	.5369	.5034	.4756			.9402
90.000		.2571		.2150		.3292		.5693		.4918	.4640	.4484	.4177		.8175
112.500		.3006		.3052		.3518		.4987	.7047	.7909	.7533	.7093	.6966		.8042
123.000													.5201	.7458	1.1847
135.000		.5772		1.1194		.7892		.5687	.6243	.5369	.5861	.6029	1.2426		1.2176
157.500	1.2229	1.3189	.8717	1.0817		.6808		.8064	.6339	.5941	.5144	.7398	.8656		1.2222
161.000	1.2530														
166.000				1.1212						.7448					
189.000	1.7160	2.7248	.8370	.9836	.7560	.8524	.7329	.8008	.8955	.7311	.6016	.5125	1.1287		1.4042
197.000				1.0704						.7417					1.5566
210.000								.7934				.5891			
220.000				3.0824						.7317					
232.000								.5237				.6657			

ORIGINAL PAGE IS  
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UPWT 1059 (IH4) 01-T15-SBN16 EXTERNAL TANK

(MQ3TAC)

MACH ( 2 ) = 3.700 ALPHA ( 2 ) = .000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000 1.4049

151.000 1.4832

180.000 1.7606 .2429

210.000 2.9502

MACH ( 3 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .2'620 Q(PSI) = 4.0904 RN/L = 5.0000 CPSTG = 1.8033

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000 2.1573 1.2749 .4644 .3104

45.000 .2457

67.500 .1277

90.000 .2735

112.500 .3272 .2374 .3080 .2494 2.7568 .2404 .4493

135.000 .3381 .3771 .3771 .7287 .4553 3501 .2975

157.500 .4417 .7732

167.000 .9448

180.000 7.5631 5.7061 5.8717 3.4068 2.2465 .9446 .1948 .3798 .3625 .3644 .5302 .9004

197.000 2.2235 1.0399 .3760

210.000 1.0013 .8117

220.000 .6189

225.000 .6633

232.000 1.1437

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000 .2523 .2133

45.000 .1288 .1648 .3050

67.500 .1360 .1210 .1401 .1696 .1829 .3490

90.000 .1938 .1593 .1668 .2894 .4028 .3797 .3305 .3108 .3791

112.500 .3050 .3155 .4087 .4532 .5493 .6390 .5637 .5527 .5047 .6013

123.000 .3664 .5163 1.0103

135.000 .6987 .9196 .5965 .4572 .4462 .4474 .5139 .4844 .8172 .9642

157.500 .9583 1.2247 .6401 .7462 .5437 .6947 .4347 .4911 .3925 .4315 .6684 1.0711

161.000 .9120

166.000 .5110

180.000 1.6971 2.3087 .7230 .5765 .6035 .6324 .6170 .4987 .4520 .6012 .4738 .4194 .8381 1.2150

197.000 .6440 .5429 .5429 .4648 1.1397

210.000 3.0522 .5877 .5794

220.000 .4680 .4635

232.000



DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-S8N16 EXTERNAL TANK

(MQ3TAC)

MACH ( 3 ) = 4.600 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA				
123.000	1.2504			
151.000		1.4808		
180.000			1.3704	.1338
210.000			2.1042	

MACH ( 3 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .27620 Q(PSI) = 4.0904 RN/L = 5.0000 CPSTG = 1.8033

SECTION ( 1 ) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA															
.000				2.7765	1.7469	.6798									.4138
45.000															.2402
67.500										.3300			.4491		.2321
90.000							.3069	.2698	.3150	.7731	2.5390		.4657		.2984
112.500									.3105	.3376	.3210		.4792		.2472
135.000											.3391		.3783	.2532	.2637
157.500															.5757
167.000															.5680
180.000	7.5477	5.1293	5.1668	2.7489	1.7865	.6880	.3440	.3303		.3226			.4269	.5042	.5911
197.000					1.7699	.7557				.3245					
210.000						.7418									.5873
220.000															.4153
225.000													.4926		
232.000															1.0986

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA															
.000															
45.000								.2695				.2543			
67.500								.2093				.2560			.3092
90.000				.1447				.2114	.2606	.2675	.2386	.2444			.5108
112.500		.1658		.1221		.1628		.2855		.2826	.2849	.2693	.2455		.5044
123.000		.1703		.1658		.1703		.2959	.3237	.4210	.4181	.4088	.3984		.6295
135.000													.2971		.7928
157.500		.4295		.7852		.4808		.3237	.3382	.3098	.3098	.3289	.5669		.7424
161.000	.5486	.6935	.5139	.6665		.3980		.4590	.3532	.3289	.2789	.2776	.4244		.8116
166.000															
180.000		.4295		.7852		.4808		.3237	.3382	.3098	.3098	.3289	.5669		.7424
197.000	1.1964	1.4787	.7225	.6105	.4289	.4366	.4733	.4032	.3417	.4148	.3449	.2859	.5494		1.0134
210.000				.8597						.4269					.9892
220.000								.4103				.3199			
225.000					2.8527										
232.000								.2673				.3257			

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-38N16 EXTERNAL TANK

(MQ3TAC)

MACH ( 3 ) = 4.600 ALPHA ( 2 ) = .000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000 1.0211

151.000 1.1136

180.000 1.3297 .1096

210.000 1.7606

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 517

JFMT 1059 (IH4) 01-T15-18N16 SOLID RCKT. BSTR.

(MQ3SAC) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 5.000 BETA = .000

MACH ( 1 ) = 2.950 ALPHA ( 1 ) = .000 PINF = 1.1142 Q(PSI) = 6.7266 RN/L = 5.0200 CPSTG = 1.7529

## SECTION ( 1 ) SOLID RCKT. BSTR

## DEPENDENT VARIABLE FL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	13.9254		2.3872	2.4188		2.4309							1.0453		
180.000			2.5680	2.2988							8639		1.5489		
225.000										1.3264			1.5808		1.3380
247.500												.5651	1.4529	1.2813	1.2871
260.000								8.1925							
270.000		4.0640	2.9049	2.1840	2.2141	5.3030	10.4181		.6361	.9742	.4793	.5681	1.1650	.7384	.7851
315.000												.5530			

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
PSI												
90.000	1.1300	2.2156	.8505					1.7575				2.2516
180.000	1.1620	2.8197	2.8692	1.2993				1.9477			1.7109	1.2054
210.000					1.0424	3.0949		1.2999				
215.000							.7688		.3291			
225.000		3.6765	2.3641	.4031				.8160			.1659	
240.000								.5772			.5786	
247.500	1.0501										.6002	.5568
270.000	.7474	5.0061	.5542	.3300				.5268				1.7511
315.000	.8077											

MACH ( 1 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = 1.1142 Q(PSI) = 6.7266 RN/L = 5.0200 CPSTG = 1.7529

## SECTION ( 1 ) SOLID RCKT. BSTR

## DEPENDENT VARIABLE FL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	13.6507		2.2737	2.3229		2.3490							.8372		
180.000				1.9243		1.6966					.5997		1.0617		
225.000										.5929			1.1562		1.2013
247.500												.3507	1.4849	1.4049	1.2507
260.000								8.0355							
270.000		4.0605	2.9049	2.1614	2.2123	3.3113	11.9661		.6331	.5719	.5560	.5335	1.2420	1.3874	1.2609
315.000												.9870			

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UPWT 1059 (IH4) 01-T15-S3N16 SOLID RCKT. BSTR.

(MQ3SAC)

MACH (1) = 2.950 ALPHA (2) = 5.000

SECTION (1) SOLID RCKT. BSTR	DEPENDENT VARIABLE P.											
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
PSI												
90.000	1.2152	2.2036	1.0823					2.0308				1.4539
180.000	1.1548	3.6373	1.7940	1.4023				2.3067			2.2533	1.7078
210.000					1.0645	3.0610		1.3533		.8632		
215.000							.5624		.2846		.1848	
225.000		2.8402	2.1934	.5679				.9711			.6663	
240.000								.8281			.5975	.7326
247.500	2.0055											
270.000	1.8528	2.9802	.3987	.5633				.7747				1.8035
315.000	1.0850											

MACH (2) = 3.700 ALPHA (1) = -5.000 PINF = .54730 Q(PSI) = 5.2445 RN/L = 4.9900 CPSTG = 1.7839

SECTION ( 1 ) SOLID RCKT. BSTR				DEPENDENT VARIABLE P'											
X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PS1															
90.000	11.7216		1.5149	1.4997		1.5046							.3901		
180.000				2.4269		2.1088					.6654		.9877		
225.000										1.3320			1.2030		.9038
247.500												.4843	.9568	.9568	.8346
260.000								6.4546							
270.000		3.2443	2.2406	1.5480	1.1594	2.1742	8.1533		.4458	.4336	.3733	.3135	.5019	.5549	.4548
315.000												.1148			
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900			
PS1															
90.000	.3216	.5997	.2465					.5015				.4408			
180.000	.6727	1.9403	2.2305	.7229				1.2736			.9639	.6211			
210.000					.7654	2.5951		.8320		.4704					
215.000							.8317		.2746			.1400			
225.000		2.4848	.9878	.2877				.8551				.3249			
240.000								.3807				.2610	.2307		
247.500	.6859														
270.000	.4504	3.2272	.2920	.1728				.2662				.9218			
315.000	.3945														

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-SKIN16 SOLID RCKT. BSTR.

(MQ3SAC)

MACH ( 2 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .547:0 Q(PSI) = 5.2445 RN/L = 4.9900 CPSTG = 1.7839

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	11.7680		1.5378	1.5475		1.5524							.4941		
180.000			1.7875			1.5221					.4495		.3954		
225.000										.9045			.5556		.7923
247.500												.2543	.6218	.7159	.7203
260.000								7.2827							
270.000		3.2753	2.2768	1.5616	1.4337	1.8792	6.2194		.4183	.5838	.3698	.2455	.5174	.4586	.4042
315.000												.2734			

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
PSI												
90.000	.5232	1.3399	.3747					.8932				1.0641
180.000	.5880	1.6676	1.7717	.8450				1.2553			1.0159	.7144
210.000					.5228	1.9954		.8263		.5105		
215.000							.6153		.2464			
225.000		1.6079	1.3621	.2400				.7188			.1239	
240.000								.2845			.3567	.3039
247.500	.6130										.3322	
270.000	.4057	3.5825	.3085	.2001				.2696				.9127
315.000	.4160											

MACH ( 3 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .27620 Q(PSI) = 4.0904 RN/L = 5.0000 CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	10.2204		1.0529	1.0377		1.0420							.2115		
180.000				1.8213		1.5258					.3396		.3203		
225.000										.4418			.6865		.5655
247.500												.2697	.4919	.6636	.5731
260.000								2.7928							
270.000		2.6886	1.7836	1.1324	.9718	1.5486	2.5214		.2602	.2917	.2464	.1686	.2437	.3770	.3279
315.000												.0782			

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
PSI												
90.000	.1917	.4663	.1502					.2914				.2616
180.000	.4322	1.2396	1.5912	.4729				.8666			.7041	.4394
210.000					.4563	1.6783		.6432		.3480		
215.000							.5911		.2058		.1043	
225.000		1.2345	.8767	.1899				.5796			.2424	
240.000								.1869			.1747	.1527

UPWT 1059 (IH4) 01-T15-S8N16 SOLID RCKT. BSTR.

(MQ3SAC)

MACH ( 3 ) = 4.600 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
PSI												
247.500	.4659											
270.000	.2881	2.3661	.1973	.0940				.1350				.5613
315.000	.2084											

PSI

247.500

270.000

315.000

MACH ( 3 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .27620 Q(PSI) = 4.0904 RN/L = 5.0000 CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	10.4253		1.0784	1.0754		1.0796							.2636		
180.000				1.3282		1.0873					.2502		.1998		
225.000										.3446			.2401		.4623
247.500												.1402	.3624	.3654	.4250
260.000								3.0744							
270.000		2.7672	1.8232	1.1531	1.1720	1.2038	2.8798		.2817	.4531	.2517	.1223	.2491	.2356	.2327
315.000											.1417				

PSI

90.000

180.000

225.000

247.500

260.000

270.000

315.000

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
PSI												
90.000	.2624	.3205	.2309					.4789				.5078
180.000	.3445	1.1406	1.2396	.4425				.6956			.5627	.4863
210.000					.3973	1.1984		.4542		.2983		
215.000							.3620		.1410		.0786	
225.000		1.3147	.6421	.1671				.3742			.1776	
240.000								.1722			.1342	.1456
247.500	.3490											
270.000	.2327	1.5178	.1575	.1111				.1466				.5564
315.000	.2550											

PSI

90.000

180.000

210.000

215.000

225.000

240.000

247.500

270.000

315.000

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TABULATED SOURCE DATA - IH4

PAGE 521

UPWT 1059 (IH4) 01-T15-SBN16 ORBITER FUSELAGE

(MQ3BAD) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = -5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32910 Q(PST) = 3.1537 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) ORBITER FUSELAGE

## DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	7.2026	3.2993	1.3826	1.4389		1.4065	1.1582	5.5950		.4231					
10.000								2.5775							
20.000								1.0813							
24.500								1.3390							
39.000								1.3486							
163.000														4.2425	
174.000															
180.000	7.2026				2.6116			2.2371	2.2086	2.4619	5.5809	6.5226	6.0569		5.6121
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	.9548	.6728	.5528	.4751	.5470		1.5553				.1464		.0723	.6735	
23.000		.6857													
24.000	1.0832														
31.500	.9694														
33.100		.7700													
35.000	.8462														
40.000	.8722	.8073													
45.000		.8414													
50.000	1.0409														
51.600													.7814		
57.000		.9727													
60.900		.8374													
65.000		.7723													
68.000													.5788		
69.000		.7674													
79.300					.6629										
95.500					.6889		.6306								
95.700		.6279													
96.300	1.0956														
103.000					.6952										
105.000															.1402
112.600					.7106										
117.500												.7302		.7442	
120.800									1.6114						
127.900						2.6475									
129.500								2.4184							

ORIGINAL PAGE IS  
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UPWT 1059 (1H4) 01-T15-38N16 ORBITER FUSELAGE

(MQ3BAD)

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8100	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
130.000									1.8930	.9169		.6622			
135.000		.3924			.7169										
139.600								1.6381							
144.000												.6938			
155.000	2.1822														
180.000	1.2652	.4388			.5429										

PHI  
130.000  
135.000  
139.600  
144.000  
155.000  
180.000

X/LB 1.0250 1.0500

PHI

.000 .0717 .0958

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32310 Q(PS1) = 3.1537 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	5.0965	2.5466	1.3058	1.2768		1.2666	1.0449	4.6489		.3166					
10.000								2.0960							
20.000								.9564							
24.500								1.0929							
39.000								1.0294							
163.000														2.7571	
174.000											4.1449				
180.000	5.0965				1.4559			1.1974	1.1964	1.3316	3.3125	3.8523		3.6520	

PHI

.000  
10.000  
20.000  
24.500  
39.000  
163.000  
174.000  
180.000

X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8100 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI

.000 .6138 .4400 .3756 .2916 .3329 1.0.66 .1013 .0597 .0645  
23.000 .4628  
24.000 .8573  
31.500 .7745  
33.100 .5180  
35.000 .8655  
40.000 1.0140 .5537  
45.000 .6122  
50.000 1.0564  
51.600  
57.000 .6315  
60.900 .6315  
65.000 .6301  
68.000

.3678

.3188



TABULATED SOURCE DATA - 1H4

UPWT 1059 (1H4) 01-T15-58N16 ORBITER FUSELAGE

(MQ3BAD)

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE F'L

[illegible]

PHI  
.000 .0603 .0760

MACH ( 2 ) = 4.600    ALPHA ( 1 ) = -5.000    PINF \* .16570    Q(PSI) = 2.4540    RN/L = 3.0000    CPSTG = 1.8033

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE FL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	5.1050	2.3708	.8937	.8902		.8797	.6863	3.4546		.3155					
10.000								1.4282							
20.000								.7189							
24.500								.7465							
39.000								.7124							
163.000														3.0368	
174.000															
180.000	5.1050				1.5176			1.2461	1.2424	1.4096	3.7443	4.7693	4.5481		4.0916

[illegible]

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TABULATED SOURCE DATA - IH4

PAGE 524

UPWT 1059 (IH4) 01-T15-S3N16 ORBITER FUSELAGE

(MQ3BAD)

MACH ( 2 ) = 4.600      ALPHA ( 1 ) = -5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE P.

[illegible]

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 525

UPWT 1059 (IH4) 01-T15-SIN16 ORBITER FUSELAGE

(MQ3BAD)

MACH (2) = 4.600 ALPHA (2) = .000 PINF = .16570 Q(PSI) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION (1) ORBITER FUSELAGE		DEPENDENT VARIABLE PI.													
X/LB		.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750 .1800
PHI															
.000	4.0888	2.0202	1.0525	.7777			.8861	.7980	3.2637		.2227				
10.000									1.0852						
20.000									.7021						
24.500									.7167						
39.000									.6534						
163.000															2.1373
174.000															
180.000	4.0888				1.0476				.8327	.8411	.9501	2.4026	3.2494	3.1401	3.0725
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	.3072	.2925	.2185	.1949	.1757		.5987				.0751		.0465	.0519	
23.000		.3299													
24.000	.2470														
31.500	.3511														
33.100		.3771													
35.300	.3901														
40.000	.4925	.3803													
45.000		.3803													
50.000	.5493														
51.600															
57.000		.4234											.1665		
60.900		.4228													
65.000		.3735													
68.000														.1827	
69.000		.3526													
79.300					.2326										
95.500					.2380		.1517								
95.700		.3108													
96.300	.5623														
103.000					.2340										
105.000															.0560
112.600					.2117										
117.500															
120.800									.6647				.2670	.2832	
127.900						.4985									
129.500								.9195							
130.000									.7263	.3435			.2178		
135.000		.1578			.1470				.4808						
139.600															
144.000													.1949		
155.000	1.0916														
180.000	.6730	.1664			.1254										

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DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 526

UPWT 1059 (IH4) 01-T15-SEN16 ORBITER FUSELAGE

(MQ3BAD)

MACH ( 2) = 4.600 ALPHA ( 2) = .000

SECTION ( 1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB 1.0250 1.0500

PHI  
.000 .0489 .0501

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 527

UPWT 1059 (IH4) 01-T15-S8N16 ORB. UPPER WING

(MQ3UAD) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = -5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32910 Q(PSI) = 3.1537 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.8934		
.200	.4333	.4684	.8413
.600	.2457	.1531	
.800		.1543	
.900		.5223	.2590
.950		.2512	

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32910 Q(PSI) = 3.1537 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.4673		
.200	.2186	.2631	.4823
.600	.0879	.0844	
.800		.0850	
.900		.5093	.1682
.950		.1635	

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .11570 Q(PSI) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.4000		
.200	.1686	.2323	.4286
.600	.0554	.0613	
.800		.0625	
.900		.3042	.1651
.950		.1120	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 528

UPWT 1059 (IH4) 01-T15-38N16 ORB. UPPER WING

(MQ3UAD)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .16370 Q(PSI) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.2703		
.200	.1073	.1465	.3129
.600	.0422	.0519	
.800		.0609	
.900		.3154	.1194
.950		.1043	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 529

UPWT 1059 (IH4) 01-T15-S8N16 ORB. LOWER WING

(MQ3LAD) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = -5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32910 Q(PSI) = 3.1537 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE F'L

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000						2.3742		3.2447		.4782
.001	.6809	.4264		1.9101	.7084	2.6524		.7288		
.002					.4863			.6511		
.003					3.5997			4.0400		
.004					1.0515			.9176		
.005					.5933			.6481		
.025				.3939	.5074		.6674			
.045				.4182						
.100						.6161		.6452	.6695	
.153	.5463									
.177					.4472					
.200				.4282						
.299	.5206									
.302				.6848			.6423			
.428						.6320				
.444	.5103									
.487					1.3738					
.559				1.8217						
.600						1.2211				
.700						1.0070				
.736	2.6535									
.800						.8998				
.850						.8118				
.900				.4032		.6756	.6015		.4310	

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32910 Q(PSI) = 3.1537 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE F'L

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000						2.3862		3.1167		.3637
.001	.4790	.3832		1.7629	.7973	2.7480		.9824		
.002					.5537			.8366		
.003					3.0757			3.2856		
.004					1.1266			1.3298		
.005					.6511			.8513		

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UPWT 1059 (IH4) 01-T15-58N'S ORB. LOWER WING

(MQ3LAD)

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORB. LOWER WING				DEPENDENT VARIABLE FL						
2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.025				.4449	.5748		.8649			
.045				.4400						
.100						.5640		.8476	.9044	
.153	.3572									
.177					.3844					
.200				.3137						
.299	.3167									
.302				.4109			.7335			
.428						.5980				
.444	.3167									
.487					1.2415					
.559				1.2938						
.600						1.0670				
.700						.9118				
.736	2.1285									
.800						.7773				
.850						.6838				
.900				.3021		.5777	.5801		.3533	

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .16570 Q(PS1) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. LOWER WING				DEPENDENT VARIABLE P <sub>L</sub>						
2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						1.9868		2.6866		.2993
.001		.4310	.3253		1.5157	.5790	2.2138	.6598		
.002						.3773		.5216		
.003						2.8231		3.0876		
.004						.8674		.8880		
.005						.4521		.5483		
.025				.3204	.4456		.5839			
.045				.3123						
.100						.3605		.5286	.6213	
.153	.3383									
.177					.2957					
.200				.2972						
.299	.2690									
.302				.3046			.4131			
.428						.5097				
.444	.2526									
.487					.6568					
.559				.5409						
.600						.6791				



DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 531

UPWT 1059 (IH4) 01-T15-S3N16 ORB. LOWER WING

(MQ3LAD)

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) ORB. LOWER WING				DEPENDENT VARIABLE PL						
2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.700						.5020				
.736	1.6268									
.800						.3970				
.850						.3503				
.900				.2585		.3125	.3419		.1704	

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .16570 Q(PSI) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. LOWER WING				DEPENDENT VARIABLE PL						
2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						1.9110		2.5886		.1902
.001		.3348	.2714		1.2712	.5965	2.2677	.7632		
.002						.3982		.6097		
.003						2.4435		2.6773		
.004						.8878		.9800		
.005						.4746		.6244		
.025				.2990	.4339		.6779			
.045				.2909						
.100						.3863		.5851	.6404	
.153	.2698									
.177					.3041					
.200				.2834						
.299	.1890			.2967			.4990			
.302						.4148				
.428										
.444	.2244									
.487					.6171					
.559				.5181						
.600						.5329				
.700						.4721				
.736	.7927									
.800						.4262				
.850						.3917				
.900				.3756		.3541	.2679		.2232	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 532

UPWT 1059 (IH4) 01-T15-SEN16 ORB. VERT. TAIL

(MQ3VAD) ( 15 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 3.000 BETA = -5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32910 Q(PSI) = 3.1537 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) ORB. VERT. TAIL

## DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

## X/CV

.000	2.7292	3.9478	3.5024	4.0758
.300	1.8246	1.8216	1.2440	
.500		1.6678		
.700		.7063		
.900	.5707	.6021	.7093	

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32910 Q(PSI) = 3.1537 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) ORB. VERT. TAIL

## DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

## X/CV

.000	2.4510	2.5159	2.5569	2.3811
.300	1.2308	1.0501	.9592	
.500		1.1129		
.700		.5029		
.900	.3413	.4281	.4698	

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -3.000 PINF = .16570 Q(PSI) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

## SECTION ( 1 ) ORB. VERT. TAIL

## DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

## X/CV

.000	1.9424	1.9407	2.1455	2.5193
.300	.9050	.7017	.5734	
.500		.8385		
.700		.4456		
.900	.2609	.3851	.3167	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 533

UPWT 1059 (IH4) 01-T15-S8416 ORB. VERT. TAIL

(MQ3VAD)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .1657 Q(PSI) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.8632	2.0220	1.5031	1.7421
.300	.7142	.6110	.5139	
.500		.6200		
.700		.3189		
.900	.2283	.2760	.2319	

UPWT 1059 (IH4) 01-T15-98N16 EXTERNAL TANK

(MQ3TAD) ( 15 APR 76 )

### REFERENCE DATA

```

SREF  = 2690.0000 SQ.FT.   XMRP  = .0000 INCHES
LREF  = 1290.3000 INCHES  YMRP  = .0000 INCHES
BREF  = 1290.3000 INCHES  ZMRP  = .0000 INCHES
SCALE = .0100

```

## PARAMETRIC DATA

RN/L = 3.000 BETA = -5.000

MACH (1) = 3.700    ALPHA (1) = -5.000    PINF = .32910    Q(PSI) = 3.1537    RN/L = 3.0000    CPSTG = 1.7839

## SECTION (1) EXTERNAL TANK

## DEPENDENT VARIABLE FL

[illegible]

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-S3N16 EXTERNAL TANK

(MQ3TAD)

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) EXTERNAL TANK DEPENDENT VARIABLE P.

X/LT .9250 .9350 .9370 .9750

THETA  
 151.000 1.8897  
 180.000 1.7907 .1875  
 210.000 2.0742

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32910 Q(PSI) = 3.1537 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) EXTERNAL TANK DEPENDENT VARIABLE P.

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2010 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA  
 .000 2.2472 1.4596 .6118 .3657  
 45.000 .4811  
 67.500 .2353  
 90.000 .2987  
 112.500 .4536 .3515 .4375 1.6011 .4209 .4299  
 135.000 .3967 .4148 .8251 .4948 .2670  
 157.500 .3967 .3877 .3575 .5219  
 167.000 .4945  
 180.000 5.8252 4.1288 4.3796 2.2435 1.4909 .6509 .3433 .3187 .3380 .3960 .4616 .5312  
 197.000 1.4403 .6439 .3361 .5988  
 210.000 .5815  
 220.000 .5930  
 225.000 .5968  
 232.000 .5833 .7707

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5730 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA  
 .000 .2772 .2778  
 45.000 .2215 .3094 .3809  
 67.500 .3032 .3477 .3460 .2933 .2904 .4472  
 90.000 .1689 .1418 .2172 .3749 .3396 .3628 .3581 .3026 .5925  
 112.500 .1901 .1991 .2700 .3419 .4420 .5699 .5560 .5410 .5167 .5566  
 123.000 .4171 .4542 1.0537  
 135.000 .3469 .4118 .4842 .4524 .4380 .4096 .4102 .4200 .6468 1.1036  
 157.500 .4829 .9078 .6954 .9387 .5911 .6989 .4287 .3574 .3452 .4606 .5294 1.0350  
 161.000 .8055  
 166.000 .6355  
 180.000 1.3242 1.5312 .5234 .5119 .3863 .4925 .5099 .4336 .3273 .3458 .3052 .4342 .5308 .8223  
 197.000 .6335 .3260  
 210.000 .3716 .4299  
 220.000 3.8575 .3581  
 232.000 .2893 .3187

UPWT 1059 (IH4) 01-T15-SIIN16 EXTERNAL TANK

(MQ3TAD)

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000

SECTION ( 1 ) EXTERNAL TANK DEPENDENT VARIABLE PI.

X/LT .9250 .9350 .9370 .9750

THETA

123.000	1.2103			
151.000		1.7185		
180.000			1.2311	.1370
210.000			1.3847	

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .165'0 Q(PSI) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) EXTERNAL TANK DEPENDENT VARIABLE PI.

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2010 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000														
45.000				1.2931	.7704	.2682								.1338
67.500														.1409
90.000														.0979
112.500								.2710	.2003	.2636	.2199			.2003
135.000										.2681	.3103	.2802		.3012
157.500											.3133			.2591
167.000													.2425	.4258
180.000	4.4428	3.3488	3.7635	2.0393	1.3335	.5706	.3016	.2284		.2458			.2903	.3890
197.000					1.2618	.5643				.2535			.3213	.4490
210.000						.4848								.3484
220.000														.3503
225.000												.4103		
232.000														.5728

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5710 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000								.0984				.1291		
45.000								.0666				.0572		.1055
67.500					.0663			.1108	.0852	.0858	.1195	.1061		.2291
90.000		.1341			.1024		.1084	.1972		.2737	.2685	.2615	.2389	.2482
112.500		.2048			.2033		.2515	.2708	.3543	.4790	.4523	.4129	.4025	.3363
123.000													.3514	.4402
135.000					.3509	.3600	.4955	.3868	.3619	.3294	.3172	.3294	.4616	.4871
157.500	.4858	.6309	.5554	.7257		.4703		.4137	.3373	.2839	.2495	.2629	.3628	.7122
161.000	.6851													
166.000				.4703						.2788				
180.000	1.0871	1.3637	.4606	.3716	.3096	.3735	.3917	.3010	.2699	.2425	.2049	.2406	.4213	.6034
197.000				.3948						.2520				.6817
210.000								.2081				.1903		
220.000					2.0526					.2514				
232.000								.2158				.1941		

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 537

UPWT 1059 (IH4) 01-T15-SEN16 EXTERNAL TANK

(MQ3TAD)

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA  
 125.000 .7858  
 151.000 1.1115  
 180.000 .8376 .0827  
 210.000 .9942

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .16573 Q(PSI) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA  
 .000 1.6604 1.0494 .4118 .2050  
 45.000 .2695  
 67.500 .1598  
 90.000 .2156  
 112.500 .1749  
 135.000 .2985  
 157.500 .4304  
 167.000 .3088  
 180.000 4.4831 3.1245 3.1808 1.6291 1.0513 .4105 .2082 .2085 .2085 .2181 .2355 .3243  
 197.000 1.0044 .4065 .2104  
 210.000 .3618 .3011  
 220.000 .3436  
 225.000 .3146  
 232.000 .5984

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA  
 .000 .1321 .1339  
 45.000 .1230 .1477 .2147  
 67.500 .0920 .1496 .1624 .1716 .1682 .1490 .2517  
 90.000 .1191 .0874 .1100 .1682 .1890 .2000 .2163 .2134 .2911  
 112.500 .1176 .1161 .1206 .1827 .1902 .2267 .2754 .3067 .3328 .3456  
 123.000 .2940 .2992 .4273  
 135.000 .2216 .2080 .1930 .3038 .2633 .2505 .2383 .2221 .3496 .4227  
 157.500 .2779 .3880 .4787 .6621 .4189 .2985 .2698 .2148 .1745 .1899 .2500 .5958  
 161.000 .3474  
 166.000 .4131  
 180.000 .7180 1.2464 .3629 .3108 .2239 .2355 .2934 .2679 .2007 .1560 .1477 .1745 .2992 .4564  
 197.000 .3687 .1594  
 210.000 .1630 .1681  
 220.000 1.9239 .1624 .1720  
 232.000 .1087

UPWT 1059 (IH4) 01-T15-S8 J16 EXTERNAL TANK

(MQ3TAD)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000

.6889

151.000

.6559

180.000

.7422

.0563

210.000

.7614



DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 539

UPWT 1059 (IH4) 01-T15-S8M16 SOLID RCKT. BSTR.

(MQ3SAD) ( 15 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 3.000 BETA = -5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32910 Q(PSI) = 3.1537 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	7.8682		1.2141	1.1850		1.2165							.2475		
180.000				2.1730		1.9246					.7715		.9370		
225.000										1.3963			1.0888		.7684
247.500												.4986	.9707	.8358	.7361
260.000								5.5556							
270.000		2.1387	1.4710	1.0758	.8620	1.6147	6.2536		.3492	.2427	.2677	.2962	.5411	.4927	.4018
315.000												.1085			

X/LSRB .7000 .7800 .8000 .9000 .9100 .9200 .9250 .9300 .9400 .9500 .9600 .9900

PSI

90.000	.1483	.4312	1.1187					.3462				.3115			
180.000	.5778	1.7769	1.8008	.8241				1.1222			1.0103	.7183			
210.000					.7759	2.3045		1.0988		.6352					
215.000							.7746		.2992		.1530				
225.000		3.0945	.3666	.4241				.6407			.4358				
240.000								.3798			.2841	.2162			
247.500	.5631														
270.000	.3343	2.1302	.1746	.0993				.1179				.5151			
315.000	.1334														

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32910 Q(PSI) = 3.1537 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	8.1515		1.2566	1.2742		1.2972							.3844		
180.000				1.3073		1.1021					.3816		.2902		
225.000										.5754			.4168		.5450
247.500												.2003	.4522	.5302	.5553
260.000								4.3865							
270.000		2.1984	1.5482	1.1002	1.0268	1.3161	5.9003		.3638	.4162	.2489	.1576	.3564	.3005	.3211
315.000												.1738			

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UPWT 1059 (IH4) 01-T15-S8N16 SOLID RCKT. BSTR.

(MQ3SAD)

MACH (1) = 3.700 ALPHA (2) = .000

SECTION (1) SOLID RCKT. BSTR				DEPENDENT VARIABLE PL								
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
PSI												
90.000	.4038	1.0379	.2938					.6061				.7842
180.000	.4625	1.2307	1.0976	.6695				1.0363			.8610	.6723
210.000					.5667	1.7179		.7003		.5722		
215.000							.5749		.2629		.1403	
225.000		1.2393	1.1488	.3329				.5790			.3978	
240.000								.3147			.2425	.2061
247.500	.4478											
270.000	.2902	1.1829	.1591	.1315				.1781				.5166
315.000	.2607											

MACH (2) = 4.600 ALPHA (1) = -5.000 PINF = .16570 Q(PSI) = 2.4540 RN/L = 3.0000 CPST6 = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR				DEPENDENT VARIABLE PL											
X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	7.2145		.8891	.8904		.9076							.1786		
180.000				1.3110		1.0852					.2802		.2288		
225.000										.5999			.2957		.4280
247.500												.1709	.3121	.4339	.4295
260.000								3.8523							
270.000		1.8486	1.2151	.8128	.5767	.9969	3.5826		.2728	.2378	.1762	.1055	.1560	.2333	.2244
315.000												.0624			
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900			
PSI															
90.000	.1462	.5019	.1172					.2683				.3568			
180.000	.3299	.9269	.6541	.5133				.8000			.5034	.3316			
210.000					.4789	1.4343		.4013		.3020					
215.000							.4272		.1510		.1020				
225.000		.9811	.4547	.2003				.4558			.1823				
240.000								.1429			.1401	.1313			
247.500	.3492														
270.000	.2110	1.1113	.1154	.0596				.0615				.3093			
315.000	.1412														

TABULATED SOURCE DATA - 1H4

UPWT 1059 (1H4) 01-T15-S3N16 SOLID RCKT. BSTR.

(MQ3SAD)

MACH (2) = 4.600 ALPHA (2) = .000 PINF = .16570 Q(PSI) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE P.

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
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PSI

90.000

180,000

225.000

247.500

260.000

270.000

315,000

X/LSRB

PS1

90.000

180.000

210.000

215.000

225.000

240.000

247.500

270.000

315.000

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 542

UPWT 1059 (IH4) 01-T15-SUN16 ORBITER FUSELAGE

(MQ3BAE) ( 15 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 3.000 BETA = 5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32905 Q(PS1) = 3.1551 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) ORBITER FUSELAGE

## DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	7.4296	3.3437	1.4253	1.3860		1.3553	.9678	4.7644		.5074					
10.000								3.3806							
20.000								.9581							
24.500								.6630							
39.000								.8478							
163.000														3.1122	
174.000															
180.000	7.4296				2.6355			2.2592	2.2316	2.3760	5.2128	5.5926	5.8787		5.5106
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	1.1272	.5706	.7089	.4897	.5192		1.6813				.2024		.1219	.1063	
23.000		.4863													
24.000	.8381														
31.500	.7473														
33.100		.4912													
35.000	.7279														
40.000	.6614	.5058													
45.000		.5171													
50.000	.6160														
51.600															
57.000		.4961											.5599		
60.900		.4954													
65.000		.4933													
68.000													.4437		
69.000		.4415													
79.300					.4281										
95.500					.4947		.4119								
95.700		.2651													
96.300	.4982														
103.000					.4210										
105.000															.1616
112.600					.4189										
117.500															
120.800									.6402			.3848		.3848	
127.900						1.5157									
129.500								1.5065							

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 543

UPWT 1059 (IH4) 01-T15-SEN16 ORBITER FUSELAGE

(MQ3BAE)

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------

PHI

130.000

1.1063 .4708

.3218

135.000

.3090

.4153

139.600

1.5912

.4990

144.000

155.000

1.5007

180.000

1.2574

.4152

.5543

X/LB 1.0250 1.0500

PHI

.000

.0817

.1099

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32925 Q(PS1) = 3.1551 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

PHI

.000

5.3637

2.5835

1.0969

.8022

1.1566

2.1153

4.8568

.2856

10.000

2.9801

20.000

1.7666

24.500

1.2069

39.000

.5971

163.000

1.8759

174.000

180.000

5.3637

1.4782

1.2141

1.2049

1.3075

3.1674

3.4328

3.7553

3.6058

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------

PHI

.000

.4787

.4349

.4319

.3449

.3597

1.2261

.1603

.0912

.0828

23.000

.3018

24.000

.2499

31.500

.2677

33.100

.2888

35.000

.2645

40.000

.2645

.3115

45.000

.3391

50.000

.3943

51.600

.3002

57.000

.2525

60.900

.2518

65.000

.2512

68.000

.1934

DATE 20 APR 76

TABULATED SOURCE DATA - 1H4

PAGE 544

UPWT 1059 (1H4) 01-T15-S8116 ORBITER FUSELAGE

(MQ3BAE)

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

[illegible]

X/LB	1.0250	1.0500
------	--------	--------

PHI  
.000 .0852 .0965

MACH ( 2 ) = 4.600    ALPHA ( 1 ) = -5.000    PINF = .16570    Q(PSI) = 2.4540    RN/L = 3.0000    CPSTG = 1.8033

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	5.3432	2.4674	.9577	.8529		.8406	.5851	3.0558		.3538					
10.000								1.9018							
20.000								.5707							
24.500								.3979							
39.000								.4549							
163.000														2.0215	
174.000															
180.000	5.3432				1.5353			1.2556	1.2427	1.3699	3.5498	3.8776	4.0766		3.9153

[illegible]

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 545

UPWT 1059 (IH4) 01-T15-S8N16 ORBITER FUSELAGE

(MQ3BAE)

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) ORBITER FUSELAGE	DEPENDENT VARIABLE PL												
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750 1.0000 1.0145
PHI													
24.000	.4223												
31.500	.3750												
33.100		.2315											
35.000	.3571												
40.000	.3261	.2234											
45.000		.2299											
50.000	.3180												
51.600													.1590
57.000		.2174											
60.900		.2167											
65.000		.2174											
68.000													.1340
69.000		.1833											
79.300					.1653								
95.500					.1653		.1729						
95.700		.1368											
96.300	.3174												
103.000					.1278								
105.000													.0556
112.600					.1236								
117.500													
120.800									.3825			.1785	.1708
127.900					.5319								
129.500							.9654						
130.000								.7250	.3323		.1792		
135.000		.1271			.1431								
139.600								.9645					
144.000											.2826		
155.000	.9216												
180.000	.8970	.2170			.2281								
X/LB	1.0250	1.0500											
PHI													
.000	.0386	.0410											

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DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T15-58N16 ORBITER FUSELAGE

(MQ38AE)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB 1.0250 1.0500

PHI  
.000 .0479 .0508

UPWT 1059 (IH4) 01-T15-18N16 ORB. UPPER WING

(MQ3UAE) ( 15 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 3.000 BETA = 5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32925 Q(PSI) = 3.1551 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE FL

2Y/BW .4000 .6000 .8000

X/CW

.050	1.6164		
.200	.6772	.8728	1.4284
.600	.2428	.2638	
.800		.2195	
.900		.6650	.3738
.950		.3121	

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32925 Q(PSI) = 3.1551 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE P<sub>u</sub>

2Y/BW .4000 .6000 .8000

X/CW

.050	1.0460		
.200	.4055	.5409	.8828
.600	.1406	.1597	
.800		.1585	
.900		.6936	.2655
.950		.2285	

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .16570 Q(PSI) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE F<sub>u</sub>

2Y/BW .4000 .6000 .8000

X/CW

.050	.9093		
.200	.3660	.4917	.8554
.600	.1170	.1490	
.800		.1204	
.900		.4003	.2421
.950		.1792	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 549

UPWT 1059 (IH4) 01-T15-S3N16 ORB. UPPER WING

(MQ3UAE)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .16570 Q(PSI) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.6780		
.200	.2081	.3377	.6455
.600	.0821	.0932	
.800		.0944	
.900		.4063	.1624
.950		.1806	

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UPWT 1059 (IH4) 01-T15-S&amp;N16 ORB. LOWER WING

(MQ3LAE) ( 15 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 3.000 BETA = 5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32925 Q(PSI) = 3.1551 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						2.0977		1.9578		.2578
.001		.5090	.4912		1.3537	.6630	1.8059	.4986		
.002						.4215		.4250		
.003						2.7890		2.4596		
.004						.9794		.6355		
.005						.5139		.4280		
.025				.7230	.5107		.4977			
.045				.7327						
.100						.3975		.4134	.3826	
.153	.5366									
.177					.5236					
.200				.5515						
.299	.4471									
.302				.7515			.4544			
.428						1.0582				
.444	.5265									
.487					1.1164					
.559				1.3752						
.600						.8633				
.700						.6269				
.736	1.5672									
.800						.6011				
.850						.5296				
.900				.3903		.4456	.4227	.2892		

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32925 Q(PSI) = 3.1551 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						1.2317		1.4997		.2061
.001		.3505	.2661		.8421	.4397	1.3137	.4997		
.002						.3667		.4614		
.003						1.6209		1.7301		
.004						.6117		.6117		
.005						.4008		.4599		

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TABULATED SOURCE DATA - IH4

PAGE 551

UPWT 1059 (IH4) 01-T15-S8N16 ORB. LOWER WING

(MQ3LAE)

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.025				.3164	.3424		.5063			
.045				.3132						
.100						.3875		.4592	.4446	
.153	.3975				.4098					
.177										
.200				.3936						
.299	.2697									
.302				.5380			.4201			
.428						.6677				
.444	.2255									
.487					.7945					
.559				.8977						
.600						.6663				
.700						.5451				
.736	.9581									
.800						.4498				
.850						.3664				
.900				.2032		.3021	.4173		.2263	

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .16573 Q(P51) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						1.0594		1.0321		.1500
.001		.2103	.2006		.6196	.2968	1.0150	.2595		
.002						.2006		.2461		
.003						1.4929		1.3034		
.004						.4719		.3489		
.005						.2283		.2372		
.025				.2902	.2430		.2609			
.045				.2886						
.100						.2249		.2478	.2462	
.153	.2283									
.177					.2774					
.200				.2282						
.299	.2237									
.302				.4027			.2701			
.428						.5161				
.444	.1745									
.487					.6026					
.559				.6519						
.600						.4624				

UPWT 1059 (IH4) 01-T15-S846 ORB. LOWER WING

(MQ3LAE)

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.700						.3172				
.736	.7712									
.800						.2412				
.850						.2225				
.900				.1501		.2141	.1815		.1410	

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .1657 Q(PSI) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000						.9097		1.0979		.1110
.001	.1893	.1583		.6235	.2791	.9150		.3021		
.002					.2301			.2307		
.003					1.1559			1.2310		
.004					.4286			.4146		
.005					.2285			.2441		
.025				.1926	.2399		.2775			
.045				.1893						
.100						.2428		.2416	.2644	
.153	.2008									
.177					.2530					
.200				.2233						
.299	.1727									
.302				.3215			.2817			
.428						.3810				
.444	.1548									
.487					.4644					
.559				.4793						
.600						.3706				
.700						.2674				
.736	.5522									
.800						.2166				
.850						.1956				
.900				.1155		.1729	.1630		.1427	

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TABULATED SOURCE DATA - IH4

PAGE 553

UPWT 1059 (IH4) 01-T15-S8N16 ORB. VERT. TAIL

(MQ3VAE) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = 5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32925 Q(PSt) = 3.1551 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) ORB. VERT. TAIL

## DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

## X/CV

.000	2.8231	3.7140	2.8845	3.9922
.300	.6395	.6389	.6485	
.500		.6071		
.700		.2924		
.900	.3135	.3044	.3465	

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32925 Q(PSt) = 3.1551 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) ORB. VERT. TAIL

## DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

## X/CV

.000	2.5357	2.1568	1.6362	2.3923
.300	.3604	.3080	.3473	
.500		.2925		
.700		.1763		
.900	.1692	.1847	.2169	

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .16570 Q(PSt) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

## SECTION ( 1 ) ORB. VERT. TAIL

## DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

## X/CV

.000	2.0151	1.7933	1.6431	2.4299
.300	.2768	.2605	.2701	
.500		.2430		
.700		.1224		
.900	.1248	.1363	.1610	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 554

UPWT 1059 (IH4) 01-T15-S8N16 ORB. VERT. TAIL

(MQ3VAE)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .16570 Q(PSI) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.9001	1.7294	1.1065	1.7038
.300	.2004	.1753	.2094	
.500		.1537		
.700		.0903		
.900	.0861	.0963	.1119	



DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 555

UPWT 1059 (IH4) 01 T15-S8N16 EXTERNAL TANK

(MQ3TAE) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = 5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32925 Q(PSI) = 3.1551 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) EXTERNAL TANK

## DEPENDENT VARIABLE PL

X/LT	.0000	.0050	.0100	.0400	.0800	.1500	.2000	.2500	.2750	.3000	.3250	.3350	.3500	.3750	.4000
THETA															
.000				1.3657	.8161	.3168									.2201
45.000															.1153
67.500										.1702			.0828		.0572
90.000							.2277	.2094	.2184	.9128	2.3483		.3329		.2304
112.500									.3208	.3509	.4232		.9218		.6311
135.000											.4067		.6507	.6296	.6718
157.500															.8540
167.000															.9138
180.000	5.7928	5.1238	4.1014	3.3302	2.3825	1.1706	.6767	.5417		.5263			.5205	.5205	1.1849
197.000					2.4552	1.3232				.5822					
210.000						1.3119									.9215
220.000															.9523
225.000															
232.000												1.1473			1.1435
X/LT	.4250	.4500	.4750	.5000	.5250	.5500	.5750	.6000	.6500	.7000	.7500	.8000	.8500	.8750	.9000
THETA															
.000								.1310				.1846			
45.000								.1159				.1823			.3697
67.500				.0768				.1436	.1441	.1650	.1858	.1986			.4452
90.000		.2455		.2862		.5392		.4898		.3601	.3213	.3149	.2842		.7178
112.500		.5392		.7094		.6974		.7364	.6756	.5679	.5465	.4909	.5436		1.1144
123.000													.5303	.8394	1.0996
135.000		.8872		.6929		.4970		.5806	.6009	.6171	.4984	.4550	.9384		1.0934
157.500	.7808	.8193	.3489	.3219		.3952		.5009	.3465	.4077	.3758	.5832	.6911		1.0496
161.000	.5803														
166.000				.5205						.6330					
180.000	2.4949	1.7665	.7615	.8135	.5861	.7615	.8039	.6202	.4913	.5564	.4447	.7038	.9572		1.2966
197.000				.7962						.6202					1.3416
210.000								.8940				.6604			
220.000				3.6392						.7970					
232.000								.6942				.7115			
X/LT	.9250	.9350	.9370	.9750											
THETA															
123.000	1.2494														

ORIGINAL PAGE IS  
 OF POOR QUALITY

UPWT 1059 (IH4) 01-115-S8N16 EXTERNAL TANK

(MQ3TAE)

MACH (1) = 3.700 ALPHA (1) = -5.000

SECTION (1) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

151.000

1.7610

180.000

1.9504

.1857

210.000

3.0794

MACH (1) = 3.700 ALPHA (2) = .000 PINF = .32925 Q(PSI) = 3.1551 RN/L = 3.0000 CPSTG = 1.7839

SECTION (1) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000

2.1757 1.4166 .6063

45.000

.3749

67.500

.1926

90.000

.1583

112.500

.2314

.2623

.2683

.2804

2.8711

.2924

.1869

135.000

.2728

.2713

.2502

.3603

.1990

157.500

.2939

.3437

.3753

167.000

.2352

.2548

.6408

180.000

5.8263

4.1110

3.9864

2.1416

1.5215

.6587

.3519

.2741

.2664

.3938

.5617

.6022

197.000

1.5758

.7849

.3474

210.000

.8046

.6679

220.000

.5984

225.000

.6273

232.000

.8416

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000

.2829

.2603

45.000

.2771

.2638

.3500

67.500

.3550

.3317

.2819

.2709

.2640

.5522

90.000

.1357

.1538

.3105

.3045

.3045

.3317

.2819

.2773

.2819

.2749

.4955

112.500

.1794

.2593

.3226

.3496

.3867

.3652

.3450

.3340

.6055

.6095

.6489

.7235

123.000

135.000

.6196

.5472

.3422

.2489

.2749

.3317

.3247

.2981

.5690

.4190

.6738

157.500

.6022

.6022

.2432

.2799

.2143

.3748

.2048

.2266

.2042

.3797

.4190

.6860

161.000

.5019

166.000

.6003

180.000

1.4515

1.2388

.6833

.5694

.3880

.3474

.5289

.4464

.3405

.3779

.3206

.3218

.7508

197.000

.8705

.3660

1.0040

210.000

.5267

.3835

.9568

220.000

3.4107

.4899

232.000

.3449

.4488

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 557

UPWT 1059 (IH4) 01-T15-S8N16 EXTERNAL TANK

(MQ3TAE)

MACH (1) = 3.700 ALPHA (2) = .000

SECTION (1) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA  
123.000 .8266  
151.000 1.1630  
180.000 1.1946 .1469  
210.000 2.3624

MACH (2) = 4.600 ALPHA (1) = -5.000 PINF = 16570 Q(P51) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION (1) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA  
.000 1.2740 .7631 .2787 .1513  
45.000 .1263  
67.500 .1124 .1281 .1296 .1568 .1100 .0724  
90.000 .1263 .1281 .1296 .1568 .1100 .0724  
112.500 .1263 .1281 .1296 .1568 .1100 .0724  
135.000 .1263 .1281 .1296 .1568 .1100 .0724  
157.500 .1263 .1281 .1296 .1568 .1100 .0724  
167.000 .1263 .1281 .1296 .1568 .1100 .0724  
180.000 4.3994 3.4744 3.0955 1.9144 1.3660 .5778 .3031 .2263 .2089 .2166 .3056 .5299  
197.000 1.3844 .6699 .2417  
210.000 .6809  
220.000  
225.000 .4854  
232.000 .8007

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA  
.000 .0925 .1274  
45.000 .1135 .0937 .1589  
67.500 .1124 .0945 .1020 .1159 .1153 .2318  
90.000 .0980 .1040 .1206 .2138 .2248 .1941 .1686 .1588 .3744  
112.500 .2005 .1734 .2683 .2840 .3645 .3042 .2938 .2608 .3587 .5326  
123.000 .3859 .3889 .2819 .2735 .2086 .2451 .2399 .2220 .4120 .5123  
135.000 .3868 .1528 .1315 .1605 .1506 .1218 .1275 .1186 .2166 .3166 .5134  
157.500 .4081 .3868 .1528 .1315 .1605 .1506 .1218 .1275 .1186 .2166 .3166 .5134  
161.000 .3268  
166.000 .2959  
180.000 1.0845 1.4289 .5086 .4042 .3926 .3365 .3558 .3519 .2807 .2500 .2365 .2179 .4890 .7582  
197.000 .5338 .2762  
210.000 .4326 .3660  
220.000 1.8204 .4019 .4031  
232.000 .2903

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 558

UPWT 1059 (IH4) 01-T15-S8N16 EXTERNAL TANK

(MQ3TAE)

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000 .6606

151.000 .9793

180.000 1.1157 .0974

210.000 2.1257

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .16570 Q(P5I) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000 1.6422 1.0395 .4022 .2093

45.000 .1214

67.500 .0982

90.000 .1179

112.500 .1163

135.000 .2342

157.500 .4348

167.000 .2996

180.000 4.5370 3.0931 3.0914 1.4959 1.0552 .4186 2122 .1507 .1643 .2435 .2976 .3517

197.000 1.0773 .4928

210.000 .5201

220.000 .2996

225.000 .3537

232.000 .6725

X/LT .4250 .4500 .4750 .5000 .5250 .5500 5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000 .1260 .1425

45.000 .1466 .1202 .1718

67.500 .1809 .1496 .1374 .1449 .1455 .2389

90.000 .0922 .1043 .1299 .1565 .1716 .1623 .1560 .1577 .3137

112.500 .0982 .1058 .1753 .1809 .1919 .2192 .2076 .2134 .2574 .4992

123.000 .2516 .3838 .4470

135.000 .3188 .3203 .2206 .1699 .1757 .1542 .1693 .2180 .2974 .4163

157.500 .3034 .2706 .1276 .1391 .1140 .1716 .1129 .1217 .1476 .2214 .2485 .4049

161.000 .2435

166.000 .3691

180.000 .8349 .8581 .4368 .3711 .2512 .2242 .2493 .3116 .2315 .2416 .2151 .1924 .3557 .6718

197.000 .6146 .2283

210.000 .3501 .2201 .6036

220.000 1.7068 .3154

232.000 .1590 .2334

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 559

UPWT 1059 (IH4) 01-T1E-SBN16 EXTERNAL TANK

(MQ3TAE)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000

.5624

151.000

.7809

180.000

.7765

.1022

210.000

1.4597

UPWT 1059 (IH4) 01-T15-S8N16 SOLID RCKT. BSTR.

(MQ3SAE) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = 5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32925 Q(P51) = 3.1551 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	5.7945		.6017	.5583		.5590					.6070		.0850		
180.000			1.6404	1.4955									.6339		
225.000										.6634			.7059		.5677
247.500												.5633	.8015	.5839	.5074
260.000								4.1219							
270.000		1.6830	1.1247	.7788	.8039	1.1010	2.0534		.2165	.1798	.2380	.2838	.4750	.3059	.2706
315.000												.0809			

X/LSRB .7000 .7800 .8000 .9000 .9100 .9200 .9250 .9300 .9400 .9500 .9600 .9900

PSI

90.000	.0955	.3352	.1344					.2340				.1366			
180.000	.3471	2.0380	1.4833	.2639				.5123			.4440	.2826			
210.000					.4194	1.3394		.4126		.2008					
215.000							.4440		.1421		.0861				
225.000		2.5722	.3771	.1778				.4044			.1667				
240.000								.1639			.1899	.3369			
247.500	.4133														
270.000	.2574	1.5140	.1589	.1301				.1432				.6654			
315.000	.2015														

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32925 Q(P51) = 3.1551 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	6.0328		.6642	.6618		.6493							.2297		
180.000				.9111		.8532					.2216		.4481		
225.000										.3198			.5557		.3611
247.500												.1901	.4717	.3420	.3317
260.000								3.4385							
270.000		1.7506	1.1993	.9612	1.0544	.9280	1.8513		.2062	.2552	.1628	.1710	.2904	.2270	.2609
315.000												.1548			

DATE 20 APR 76

TABULATED SOURCE DATA - 1H4

PAGE 561

UPWT 1059 (1H4) 01-T15-18N16 SOLID RCKT. BSTR.

(MQ3SAE)

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000

SECTION ( 1 ) SOLID RCKT. BSTR				DEPENDENT VARIABLE FL									
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900	
PSI													
90.000	.3031	.6501	.3146					.5960				.5607	
180.000	.2639	1.6345	.7567	.2868				.4527			.3277	.2209	
210.000					.3412	.7627		.2624		.1808			
215.000							.2474		.1699		.1699		
225.000		1.5628	.2377	.1857				.3032			.2977		
240.000								.3141			.3385	.3277	
247.500	.4466												
270.000	.2845	1.3529	.2010	.2302				.2961				.6842	
315.000	.2521												

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .16570 Q(P5I) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR				DEPENDENT VARIABLE FL											
X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	5.1692		.4089	.3884		.3775								.0879	
180.000				.8915		.7678								.3684	
225.000										.2779		.1824		.4102	.2924
247.500												.1850	.3535	.3341	.2640
260.000								1.1413							
270.000		1.3768	.9012	.5608	.5899	.7130	1.0338		.1468	.1416	.1146	.1029	.1730	.1894	.1462
315.000												.0716			

SECTION ( 1 ) SOLID RCKT. BSTR				DEPENDENT VARIABLE FL											
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900			
PSI															
90.000	.1053	.2954	.0961					.2024				.1318			
180.000	.1700	1.2812	.8406	.1578				.3136			.2263	.1337			
210.000					.2440	.7362		.2154		.1091					
215.000							.2249		.0859		.0750				
225.000		1.5185	.1835	.1068				.1909			.1295				
240.000								.1241			.2672	.2144			
247.500	.2237														
270.000	.1387	1.1464	.1293	.0965				.1235				.4001			
315.000	.1074														

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UPWT 1059 (1H4) 01-115-58N16 SOLID RCKT. BSTR.

(MQ3SAE)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .15570 Q(PSI) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	5.1395		.4516	.4403		.4258							.1002		
180.000			.6300			.5508					.1179		.1697		
225.000										.1645			.2694		.2367
247.500												.1414	.2500	.2277	.2114
260.000								1.7567							
270.000		1.4239	.9276	.5933	.7711	.6211	1.1406		.1505	.1575	.0967	.1087	.1250	.1369	.1340
315.000											.0789				
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900			
PSI															
90.000	.1583	.4181	.1452					.2941					.2690		
180.000	.1533	1.3113	.3639	.1855				.2619			.1610		.1113		
210.000					.2237	.4597		.1869							
215.000							.2114		.1337	.1187					
225.000		1.6475	.1697	.1224				.2005			.1078				
240.000								.1964			.1705				
247.500	.2188										.1828		.1846		
270.000	.1518	1.0860	.1330	.1132				.1484							
315.000	.1220											.4109			



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UPWT 1059 (IH4) 01-T22-S8N16 ORBITER FUSELAGE

(MQ388B) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = .000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -10.000 PINF = .32910 Q(P51) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) ORBITER FUSELAGE

## DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	7.3452	3.3395	1.3751	.9210		.7323	.6537	.6574		.8796					
10.000								.6537							
20.000								.6337							
24.500								.6082							
39.000								.8286							
163.000														3.6695	
174.000															
180.000	7.3452				2.6229			2.2484	2.2143	2.4469	5.4280	6.0913	6.0289		5.6244
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	.9979	.7575	.7379	.5987	.5111		.5702				.2135		.1376	.1265	
23.000		.7484													
24.000	.8723														
31.500	.8450														
33.100		.8049													
35.000	.7849														
40.000	.7357	.8759													
45.000		.8358													
50.000	.7211														
51.600														.6500	
57.000		.5400													
60.900		.5051													
65.000		.4867													
68.000														.4805	
69.000		.4272													
79.300					.5154										
95.500					.5571		.5154								
95.700		.4231													
96.300	.7074														
103.000					.5864										
105.000															.1470
112.600					.5823										
117.500											.5345		.5577		
120.800								1.0724							
127.900						2.2392									
129.500								2.0827							

UPWT 1059 (IH4) 01-T22-S8N16 ORBITER FUSELAGE

(MQ3888)

MACH (1) = 3.700 ALPHA (1) = -10.000

SECTION (1) ORBITER FUSELAGE DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
130.000									1.5969	.7117		.5003			
135.000		.3247			.5160										
139.600								1.6420							
144.000												.6972			
155.000	1.8017														
180.000	1.2828	.4235			.5140										
X/LB	1.0250	1.0500													
PHI															
.000	.1271	.1271													

MACH (1) = 3.700 ALPHA (2) = -5.000 PINF = .32910 Q(PS1) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION (1) ORBITER FUSELAGE DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	6.2488	2.9531	1.2106	.7894		.6182	.5751	.6367		.8952					
10.000								.6349							
20.000								.6261							
24.500								.6121							
39.000								.6894							
163.000														3.0120	
174.000															
180.000	6.2488				1.9882			1.6708	1.6468	1.8205	4.3985	5.0436	5.0397		4.7705
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	.9058	.6595	.6235	.4889	.3962		3487				.1511		.1112	.1021	
23.000		.7158													
24.000	.7510														
31.500	.7105														
33.100		.8319													
35.000	.7440														
40.000	.6631	.8020													
45.000		.7950													
50.000	.6578														
51.600															
57.000		.4537													
60.900		.4523													
65.000		.4248													
68.000														.3116	



UPWT 1059 (IH4) 01-T22-S8N16 ORBITER FUSELAGE

(MQ3BBB)

MACH ( 1 ) = 3.700 ALPHA ( 3 ) = .000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

[illegible]

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UPWT 1059 (IH4) 01-T22-38N16 ORBITER FUSELAGE

(MQ3B88)

MACH (1) = 3.700 ALPHA (4) = 5.000 PINF = .32910 Q(PS1) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE 1'L

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	4.9507	3.1057	1.4587	.9944		.7667	.726	.5184		.3563					
10.000								.5353							
20.000								.6789							
24.500								.7379							
39.000								.6484							
163.000														1.7133	
174.000															
180.000	4.9507				1.0872			.8757	.8991	.9816	2.1997	2.7031	2.8111		2.7525
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	.5437	.5623	.4975	.2958	.2540		.2804				.1279		.1075	.1177	
23.000		.5690													
24.000	.4643														
31.500	.4694														
33.100		.5201													
35.000	.4424														
40.000	.4171	.4542													
45.000		.4627													
50.000	.4863														
51.600															
57.000		.3708												.1901	
60.900		.3694													
65.000		.3552													
68.000															
69.000		.3511												.1766	
79.300					.1955										
95.500					.1989										
95.700		.2916					.1637								
96.300	.5324														
103.000					.1948										
105.000															.1137
112.600					.1861										
117.500															
120.800															
127.900						.4766			.5185						
129.500								.7172							
130.000									.6967	.3759		.2699			
135.000		.1421			.2003										
139.600									.7097						
144.000															
155.000	.8630														
180.000	.6694	.2029			.2350							.3329			

UPWT 1059 (IH4) 01-T22-S3N16 ORBITER FUSELAGE

(MQ38BB)

MACH ( 1 ) = 3.700 ALPHA ( 4 ) = 5.000

SECTION ( 1 ) ORBITER FUSELAGE DEPENDENT VARIABLE P.

X/LB 1.0250 1.0500

PHI  
.000 .1273 .1369

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -10.000 PINF = .16570 Q(PS1) = 2.4551 RN/L = 3.0050 CPSTG = 1.8033

SECTION ( 1 ) ORBITER FUSELAGE DEPENDENT VARIABLE PI.

X/LB .0000 .0050 .0200 .0400 .0500 .0600 .0810 .1000 .1250 .1500 .1600 .1650 .1700 .1750 .1800

PHI  
.000 6.5041 2.8483 1.0597 .6562 .5497 .625 .5705 .5828  
10.000 .5564  
20.000 .5423  
24.500 .5247  
39.000 .6074163.000 2.8006  
174.000 4.9011  
180.000 6.5041 2.1366 1.4768 1.4373 1.5870 4.1585 4.8361 3.9347

X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8000 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI  
.000 .4155 .5159 .3690 .4234 .3387 .3366 .1168 .0787 .0751  
23.000 .5106  
24.000 .3785  
31.500 .438433.100 .4683  
35.000 .4947  
40.000 .4859 .4208  
45.000 .3997  
50.000 .4983  
51.600 .3641  
57.000 .2875  
60.900 .2881  
65.000 .2573  
68.000 .2779  
69.000 .240279.300 .2950  
95.500 .2998 .3117  
95.700 .2450  
96.300 .5551103.000 .3011  
105.000 .2909  
112.600 .0698  
117.500 .3162 .3278  
120.800 .7592

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UPWT 1059 (IH4) 01-22-S8N16 ORBITER FUSELAGE

(MQ3888)

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -10.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
127.900					1.5569			1.3913							
129.500									.9372	.4598		.2799			
130.000															
135.000		.2259			.2970										
139.600								.9641							
144.000												.3504			
155.000	1.3035														
180.000	.9569	.2413			.3006										

X/LB 1.0250 1.0500

PHI

.000 .0624 .0678

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = -5.000 PINF = .16570 Q(P51) = 2.4551 RN/L = 3.0050 CPSTG = 1.8033

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	5.2975	2.4370	.9179	.6818		.6224	.5191	.4741		.4006					
10.000								.4557							
20.000								.4423							
24.500								.4423							
39.000								.5225							
163.000														2.5222	
174.000															
180.000	5.2975				1.5265			1.2468	1.2339	1.3841	3.5758	4.3406	4.4238		4.0206

X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8000 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI

.000	.3255	.4307	.3092	.3632	.2626	.2065					.0937		.0716	.0704	
23.000		.4123													
24.000	.3238														
31.500	.3155														
33.100		.3923													
35.000	.3422														
40.000	.3856	.3656													
45.000		.3555													
50.000	.4106														
51.600													.1904		
57.000		.2628													
60.900		.2362													

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UPWT 1059 (IH4) 01-T22-S8N16 ORBITER FUSELAGE

(MQ3888)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = -5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
65.000		.2266													
68.000													.1495		
69.000		.2034													
79.300					.2300										
95.500					.2362		.1747								
95.700		.1932													
96.300	.4519														
103.000					.2287										
105.000															.0464
112.600					.1809										
117.500												.2628		.2689	
120.800									.7835						
127.900						.7557									
129.500								.8678							
130.000									.8928	.5094		.2648			
135.000		.1502			.1543										
139.600									.8706						
144.000												.3413			
155.000	1.1864														
180.000	.9025	.2485			.2455										

X/LB 1.0250 1.0500

PHI

.000 .0644 .0674

MACH ( 2 ) = 4.600 ALPHA ( 3 ) = .000 PINF = .16570 Q(P51) = 2.4551 RN/L = 3.0050 CPSTG = 1.8033

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	4.2028	2.0352	1.1119	.7394		.5603	.4714	.4332		.2324					
10.000								.4116							
20.000								.3983							
24.500								.3967							
39.000								.4631							
163.000															
174.000															
180.000	4.2028				1.0575			.8419	.8475	.9385	2.3303	2.8610	3.0691	1.7385	3.0639



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(MQ3BBB)

DEPENDENT VARIABLE PL

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UPWT 1059 (IH4) 01-T22-S8N16 ORBITER FUSELAGE

(MQ3BBB)

MACH ( 2 ) = 4.600 ALPHA ( 4 ) = 5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB 1.0250 1.0500

PHI  
.000 .0547 .0577

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UPWT 1059 (IH4) 01-T22-58N16 ORB. UPPER WING

(MQ3UBB) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = .000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -10.000 PINF = .32910 Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE FL

2Y/BW .4000 .6000 .8000

X/CW

.050	1.3036		
.200	.5170	.6649	1.1252
.600	.2005	.1887	
.800		.1816	
.900		.5531	.3023
.950		.2372	

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = -5.000 PINF = .32910 Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE FL

2Y/BW .4000 .6000 .8000

X/CW

.050	.9479		
.200	.4216	.5237	.9172
.600	.1451	.1415	
.800		.1379	
.900		.5559	.2412
.950		.1935	

MACH ( 1 ) = 3.700 ALPHA ( 3 ) = .000 PINF = .32910 Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE FL

2Y/BW .4000 .6000 .8000

X/CW

.050	.7214		
.200	.3322	.4240	.7140
.600	.1046	.1156	
.800		.1175	
.900		.5764	.2031
.950		.1756	

DATE 20 APR 76

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UPWT 1059 (IH4) 01-T22-S3N16 ORB. UPPER WING

(MQ3UBB)

MACH ( 1 ) = 3.700 ALPHA ( 4 ) = 5.000 PINF = .329 0 Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.5917		
.200	.2309	.3124	.5367
.600	.0839	.0887	
.800		.0899	
.900		.5564	.1553
.950		.1684	

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -10.000 PINF = .16570 Q(PSI) = 2.4551 RN/L = 3.0050 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.9405		
.200	.3604	.4713	.8851
.600	.1097	.1097	
.800		.0960	
.900		.3409	.2330
.950		.1411	

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = -5.000 PINF = .16570 Q(PSI) = 2.4551 RN/L = 3.0050 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.6257		
.200	.2571	.3709	.6568
.600	.0784	.1041	
.800		.1034	
.900		.3538	.1928
.950		.1371	

UPWT 1059 (IH4) 01-T22-S8N16 ORB. UPPER WING

(MQ3UBB)

MACH ( 2 ) = 4.600 ALPHA ( 3 ) = .000 PINF = .16570 Q(PSI) = 2.4551 RN/L = 3.0050 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.4434		
.200	.1513	.2319	.4573
.600	.0642	.0724	
.800		.0724	
.900		.3443	.1424
.950		.1407	

MACH ( 2 ) = 4.600 ALPHA ( 4 ) = 5.000 PINF = .16570 Q(PSI) = 2.4551 RN/L = 3.0050 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.3385		
.200	.1058	.1733	.3285
.600	.0464	.0558	
.800		.0558	
.900		.3402	.1316
.950		.1222	

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UPWT 1059 (IH4) 01-T22-S8N16 ORB. LOWER WING

(MQ3LBB) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = .000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -10.000 PINF = .32910 Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) ORB. LOWER WING

## DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

## X/CW

.000						2.0595		2.3053		.3897
.001		.7175	.5682		1.4572	.6647	1.9793	.5352		
.002						.4789		.5307		
.003						3.1433		2.9402		
.004						.8843		.7393		
.005						.5536		.5232		
.025				.5791	.5281		.5663			
.045				.5955						
.100						.4482		.5591	.5299	
.153	.6592									
.177					.4869					
.200				.4566						
.299	.5368									
.302				.6925			.5352			
.428						.5352				
.444	.5307									
.487					.6214					
.559				.5927						
.600						.4763				
.700						.4203				
.736	.5640									
.800						.3147				
.850						.3073				
.900				.2709		.2228	2148	.2420		

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = -5.000 PINF = .32910 Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) ORB. LOWER WING

## DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

## X/CW

.000						1.7823		2.2278		.3518
.001		.5874	.4714		1.2909	.6015	1.8642	.5457		
.002						.4186		.4590		
.003						2.5674		2.7278		
.004						.7649		.7457		
.005						.4784		.4575		

UPWT 1059 (IH4) 01-T22-S8N16 ORB. LOWER WING

(MQ3LBB)

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = -5.000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.025				.5048	.4960		.5470			
.045				.5136						
.100						.3781		.5048	.5435	
.153	.5241									
.177					.2945					
.200				.3274						
.299	.4156									
.302				.3633			.4874			
.428						.5308				
.444	.3977									
.487					.5651					
.559				.5038						
.600						.4724				
.700						.3892				
.736	.4620									
.800						.2967				
.850						.2436				
.900				.2224		.2049	.3176		.2299	

MACH ( 1 ) = 3.700 ALPHA ( 3 ) = .000 PINF = .32910 Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						1.7079		2.2882		.3023
.001		.4466	.3573		1.2007	.6046	1.9503	.6870		
.002						.4328		.5774		
.003						2.2677		2.4947		
.004						.8254		.9258		
.005						.4964		.5789		
.025				.4620	.4878		.3355			
.045				.4758						
.100						.3983		.6269	.6802	
.153	.4157									
.177					.3020					
.200				.2872						
.299	.3539									
.302				.2843			.3345			
.428						.4797				
.444	.2902									
.487					.5478					
.559				.4545						
.600						.4812				



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UPWT 1059 (IH4) 01-T22-S8N16 ORB. LOWER WING

(MQ3LBB)

MACH ( 1 ) = 3.700 ALPHA ( 3 ) = .000

SECTION ( 1 ) ORB. LOWER WING		DEPENDENT VARIABLE PL								
2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.700						.3919				
.736	.3494									
.800						.3115				
.850						.2647				
.900				.2142		.2264	.2434		.2485	

MACH ( 1 ) = 3.700 ALPHA ( 4 ) = 5.000 PINF = .32910 Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING		DEPENDENT VARIABLE PL								
2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						2.1585		2.5289		.1689
.001		.3411	.3090		1.5911	.8713	2.4282	1.0852		
.002						.6450		.8948		
.003						2.3940		2.2728		
.004						1.1737		1.4043		
.005						.7429		.9426		
.025				.4762	.7632		.5219			
.045				.4880						
.100						.5889		.9456	.9405	
.153	.3445									
.177					.4332					
.200				.3496						
.299	.2883									
.302				.3645			.8201			
.428						.5886				
.444	.2540									
.487					.4975					
.559				.3780						
.600						.4915				
.700						.4053				
.736	.3406									
.800						.3386				
.850						.2954				
.900				.2168		.2570	.3302		.3850	

UPWT 1059 (1H4) 01-T22-38N16 ORB. LOWER WING

(MQ3LBB)

MACH ( 2 ) = 4.600    ALPHA ( 1 ) = -10.000    PINF = .16170    Q(P51) = 2.4551    RN/L = 3.0050    CPSTG = 1.8033

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE 1'1

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				1.7816		2.1298		.2412
.001	.4419	.3838	1.3040	.5335	1.6043	.4567		
.002				.3451		.3584		
.003				2.7254		2.6521		
.004				.7487		.6761		
.005				.4190		.3780		
.025		.3944	.3926		.438			
.045		.3926						
.100				.2871		.4014	.4085	
.153	.4314							
.177			.2057					
.200		.2283						
.299	.3130							
.302		.2495			.2519			
.428				.3130				
.444	.3085							
.487			.4068					
.559		.4204						
.600				.3251				
.700				.2634				
.736	.3690							
.800				.2101				
.850				.1750				
.900		.1635		.1459	.1590		.1294	

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = -5.000 PINF = .16570 Q(PSI) = 2.4551 RN/L = 3.0050 CPSTG = 1.8033

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE FL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				1.4369		1.8806		.2120
.001	.3722	.2971	.9665	.4323	1.5359	.4412		
.002				.2854		.3467		
.003				2.0120		2.2493		
.004				.6504		.6159		
.005				.3422		.3647		
.025		.3121	.3322		.4123			
.045		.3005						
.100				.2508		.3639	.3906	
.153	.3656							
.177								
.200			.1756					
.299	.2386	.1921						

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UPWT 1059 (1H4) 01-T22-S3N16 ORB. LOWER WING

(MQ3LBB)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = -5.000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE P.

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.302

.2026

.2656

.428

.2011

.444

.2476

.487

.2461

.559

.2972

.600

.2461

.700

.2435

.736

.2596

.800

.1933

.850

.1629

.900

.1474

.1390

.1253

.1044

MACH ( 2 ) = 4.600 ALPHA ( 3 ) = .000 PINF = .16570 Q(PSI) = 2.4551 RN/L = 3.0050 CPSTG = 1.8033

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000

1.2382

1.7007

.1627

.001

.2689

.2158

.8531

.3967

1.3798

.4520

.002

.2656

.3405

.003

1.6137

1.8902

.004

.5831

.6440

.005

.3153

.3631

.025

.2722

.3270

.4000

.045

.2689

.100

.2305

.3784

.4315

.153

.2656

.177

.1597

.200

.1657

.299

.1808

.302

.1597

.3028

.428

.2305

.444

.1748

.487

.2019

.559

.1687

.600

.2260

.700

.1730

.736

.1341

.800

.1297

.850

.1105

.900

.1207

.0979

.1111

.1426

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T22-S8416 ORB. LOWER WING

(MQ3LBB)

MACH (2) = 4.600 ALPHA (4) = 5.000 PINF = .1657 Q(PSI) = 2.4551 RN/L = 3.0050 CPSTG = 1.8033

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						1.5580		1.8465		.1059
.001		.2086	.1771		1.0163	.6042	1.9113	.8036		
.002						.4370		.6302		
.003						1.7134		1.6792		
.004						.8427		1.0031		
.005						.5148		.6784		
.025				.2615	.4536		.7443			
.045				.2698						
.100						.4245		.6472	.6026	
.153	.2169									
.177					.2653					
.200				.1990						
.299	.1704									
.302				.1960			.4523			
.428						.3467				
.444	.1447									
.487					.2578					
.559				.1704						
.600						.2578				
.700						.1937				
.736	.1372									
.800						.1516				
.850						.1287				
.900				.1239		.1101	.1497		.2133	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T2?-S8N16 ORB. VERT. TAIL

(MQ3VBB) ( 15 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 3.000 BETA = .000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -10.000 PINF = .32910 Q(P51) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	2.6364	3.7201	3.1689	4.0632
.300	1.5133	.9541	.8251	
.500		1.1883		
.700		.5616		
.900	.4264	.4758	.3758	

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = -5.000 PINF = .32910 Q(P51) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	3.0453	2.6203	2.4838	3.1767
.300	.9773	.7095	.6171	
.500		.9041		
.700		.4871		
.900	.3082	.4225	.2992	

MACH ( 1 ) = 3.700 ALPHA ( 3 ) = .000 PINF = .32910 Q(P51) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	2.6278	2.2489	2.0254	2.3531
.300	.8105	.6304	.5020	
.500		.6736		
.700		.3742		
.900	.2452	.3274	.2586	

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UPWT 1059 (IH4) 01-T22-S8N16 ORB. VERT. TAIL

(MQ3VBB)

MACH ( 1 ) = 3.700 ALPHA ( 4 ) = 5.000 PINF = .33910 Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	2.1943	2.0646	1.6055	1.9127
.300	.5998	.5224	.4972	
.500		.5506		
.700		.2828		
.900	.1795	.2492	.2186	

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -10.000 PINF = .16570 Q(PSI) = 2.4551 RN/L = 3.0050 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.9574	2.9849	2.6196	3.4201
.300	.7144	.5334	.5225	
.500		.5812		
.700		.2979		
.900	.2488	.2676	.1907	

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = -5.000 PINF = .16570 Q(PSI) = 2.4551 RN/L = 3.0050 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.9079	1.7492	1.8670	2.4400
.300	.4756	.4094	.3747	
.500		.4422		
.700		.2739		
.900	.1862	.2458	.1653	

MACH ( 2 ) = 4.600 ALPHA ( 3 ) = .000 PINF = .16570 Q(PSI) = 2.4551 RN/L = 3.0050 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.7673	1.6836	1.2041	1.6871
.300	.3904	.2991	.2757	
.500		.3027		
.700		.1568		
.900	.1393	.1429	.1213	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T22-58N16 ORB. VERT. TAIL

(MQ3VBB)

MACH ( 2 ) = 4.600 ALPHA ( 4 ) = 5.000 PINF = .1E570 Q(PSI) = 2.4551 RN/L = 3.0050 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.4966	1.3037	.9913	1.3276
.300	.3236	.2598	.2207	
.500		.2538		
.700		.1257		
.900	.1022	.1125	.1004	





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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T22-SIN16 EXTERNAL TANK

(MQ3TB8)

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -10.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA  
151.000 .5372  
180.000 .4974 .1716  
210.000 .5121

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = -5.000 PINF = .32910 Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA  
.000 1.8125 1.1270 .4473 .3386  
45.000 .2645  
67.500 .1247  
90.000 .3201 .2718 .3229 1.1142 2.4463 .3890 .2313  
112.500 .3559 .3950 .3950 .6653 .4280  
135.000 .4415 .4971 .3304 .2733  
157.500 .5674  
167.000 .6061  
180.000 5.8563 4.0011 3.6665 2.7758 1.8879 .8756 .4963 .3853 .3718 .3737 .3873 .6158  
197.000 1.9054 .8814 .3776  
210.000 .8582 .4647  
220.000 .3311  
225.000 .4802  
232.000 .6642

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA  
.000 .2878 .2233  
45.000 .1517 .2341 .3260  
67.500 .1558 .2369 .3405  
90.000 .1832 .2953 .3915 .3816 .3498 .2861 .3612  
112.500 .3079 .3214 .4115 .4731 .6260 .6567 .5994 .5449 .4581 .4071  
123.000 .6128 .7975 .6428 .5345 .4650 .4384 .5131 .4685 .4488 .4175 .4019  
135.000 .8597 .9140 .6758 .8171 .5480 .5777 .5254 .4920 .3950 .3440 .3509 .4100  
161.000 .9662  
166.000 .9101  
180.000 1.2080 1.2024 .8907 .9275 .5364 .6913 .7145 .5859 .5159 .5052 .4126 .3692 .3005 .2829  
197.000 .8462 .4863  
210.000 .5789 .3912 .3433  
220.000 .9081 .4151  
232.000 .4731 .4671

ALPHA ( 1 ) = -10.000  
ALPHA ( 2 ) = -5.000  
PINF = .32910  
Q(PSI) = 3.1538  
RN/L = 3.0000  
CPSTG = 1.7839

UPWT 1059 (IH4) 01-T22-S81116 EXTERNAL TANK

(MQ3TBB)

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = -5.000

SECTION ( 1 ) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000	.4013			
151.000		.3685		
180.000			.2866	.1247
210.000			.3458	

MACH ( 1 ) = 3.700 ALPHA ( 3 ) = .000 PINF = .3291( Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000			2.2622	1.4690	.6498									.4424
45.000														.3341
67.500														.2107
90.000							.3322	.2995	.3311	.9121	2.5464		.3883	.2634
112.500									.3326	.3462	.3206		.4214	.2288
135.000											.3462		.4245	.3176
157.500													.3266	.2137
167.000														.3720
180.000	5.8484	3.3890	3.1296	2.2888	1.4856	.6444	.3512	.3527		.3604			.3585	.4786
197.000					1.5086	.6548				.3682			.3837	.4941
210.000						.6554								.3042
220.000														.2500
225.000												.3682		
232.000														.4185

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000								.3194			.2808			
45.000								.2441			.3304			.3824
67.500				.1550				.2341	.3135	.3344	.3332			.5529
90.000		.1565		.1355		.1671		.3095		.3100	.3216	.2973	.2695	.4364
112.500		.1716		.1641		.2152		.2735	.4062	.4984	.4775	.4514	.4167	.3576
123.000													.3802	.3361
135.000		.3853		.3793		.4847		.3993	.3871	.3419	.3350	.3471	.3332	.3367
157.500	.3798	.5387	.5755	.6704		.5522		.4870	.4394	.3523	.3103	.2394	.2294	.2369
161.000	.5065													
166.000				.7131						.3905				
180.000	.3565	.9708	.8642	.7499	.5832	.4534	.4999	.5886	.5102	.4093	.3460	.2702	.2269	.1910
197.000				.7228						.3598				.2532
210.000								.4319				.2783		
220.000				.5329						.3379				
232.000								.3717				.3711		

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T22-S8N16 EXTERNAL TANK

(MQ3TBB)

MACH ( 1 ) = 3.700 ALPHA ( 3 ) = .000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA  
123.000 .3471  
151.000 .2764  
180.000 .1743 .0984  
210.000 .2664

MACH ( 1 ) = 3.700 ALPHA ( 4 ) = 5.000 PINF = .32910 Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA  
.000 2.7535 1.8638 .8587 .5546  
45.000 .2380  
67.500 .3847  
90.000 .2765  
112.500 .3201 .2976 .3261 1.0272 2.6195 .4539 .1353  
135.000 .2886 .2735 .5275 .2705 .2540 .2570  
157.500 .2871 .2525 .3391  
167.000 .3139  
180.000 5.8331 2.8514 2.6057 1.8527 1.1415 .4572 .2486 .2965 .2907 .2965 .4050  
197.000 1.1672 .4729  
210.000 .4891  
220.000  
225.000 .2887  
232.000 .2170

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA  
.000 .4100 .3606  
45.000 .3743 .3558 .3910  
67.500 .3350 .3425 .3616 .3981 .4283 .4624  
90.000 .1924 .1608 .1638 .2121 .4329 .5013 .4624 .4242 .5019  
112.500 .1127 .1127 .1413 .2422 .3610 .4387 .4538 .4398 .3906 .4312  
123.000 .3564 .3355 .3616  
135.000 .1834 .2194 .2367 .3118 .3147 .2973 .3332 .3118 .3129 .3257  
157.500 .3197 .3837 .4980 .4592 .3607 .4923 .3360 .3482 .2595 .2142 .2347 .2595  
161.000 .3585  
166.000 .5968  
180.000 .6666 .8894 .8216 .8797 .5271 .3120 .6569 .5994 .4036 .3858 .2646 .2417 .2072 .2296  
197.000 .4980 .3475 .2736 .2991  
210.000 .3062  
220.000 .4330 .3303  
232.000 .1728 .3609

UPWT 1059 (IH4) 01-T22-S8N16 EXTERNAL TANK

(MQ3TB8)

MACH ( 1 ) = 3.700 ALPHA ( 4 ) = 5.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000	.5337			
151.000		.3609		
180.000			.2882	.1588
210.000			.3073	

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -10.000 PINF = .13570 Q(PS1) = 2.4551 RN/L = 3.0050 CPSTG = 1.8033

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000				.9150	.5154	.1684									.1352
45.000															.0468
67.500															.0602
90.000							.1707	.1671	.1912	.1219			.0798		.1656
112.500									.2559	.7030	1.8388		.2695		.4185
135.000										.2890	.2996		.6142		.2469
157.500											.3507		.3387	.2800	.4334
167.000															.4818
180.000	4.1642	3.1316	2.9098	2.3077	1.6277	.7740	.4340	.3251		.3618			.3947	.4141	.4838
197.000					1.6121	.7654				.3560					.3386
210.000						.7312									.2767
220.000															
225.000												.3715			.3193
232.000															

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000									.1257			.1144			
45.000									.0445			.0575			.1008
67.500					.0557				.1049	.0666	.0660	.0788	.0817		.1211
90.000		.1566			.1596		.1837		.2659	.3158	.2833	.2277	.2161		.2138
112.500		.3116			.3282		.3492		.4253	.4948	.4959	.4305	.3853	.3540	.3279
123.000														.3407	.3227
135.000		.3778			.6066		.4847		.3992	.3355	.3824	.4160	.3812	.3523	.3291
157.500	.5592	.6966	.5263	.5534		.4702			.3425	.3767	.3854	.3388	.3363	.3239	.2996
161.000	.6173														
166.000					.5921						.3904				
180.000	.7063	.9153	.7334		.6076	.5573	.4218	.3967	.2965	.4153	.3736	.3394	.2965		.2922
197.000					.5824						.3873				.3139
210.000									.4265				.3568		
220.000					.5283										
232.000									.4240				.3668		

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T22-S8N16 EXTERNAL TANK

(MQ3TBB)

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -10.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000 .3256

151.000 .3363

180.000 .2785 .0982

210.000 .2965

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = -5.000 PINF = .16570 Q(PSI) = 2.4551 RN/L = 3.0050 CPSTG = 1.8033

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000

1.2827 .7807 .2810

45.000

.1977

67.500

.1298

90.000

.1361 .1698 .1909 .5201 1.9236

.1458

112.500

.2209 .2450 .2510

.2916

135.000

.4088

157.500

.2675

.2796

.1774

167.000

.1563

180.000

4.5141 2.8995 2.6845 2.0160 1.3416 .5717 .3776 .2288

.2850

.2986

.3703

197.000

1.3471 .5763

.2908

210.000

.5612

.2811

220.000

.1900

225.000

.2831

232.000

.3102

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000

.1500

.1445

45.000

.0741

.0863

.1683

67.500

.1138

.0818

.0772

.0934

.0963

.1857

90.000

.1217

.0601

.0977

.0992

.1329

.2519

.2391

.2124

.2008

.2304

112.500

.1849

.1969

.1969

.2490

.2850

.3285

.3807

.3436

.3012

.2676

.2780

123.000

.2615

.3277

.4179

.3186

.2513

.2687

.2641

.2739

.2716

.2629

135.000

.5603

.4479

.4905

.3819

.2417

.3000

.2931

.2398

.2125

.1935

.2565

157.500

.3606

.4634

161.000

166.000

180.000

.4983

.7755

.6824

.5739

.4672

.4091

.3905

.2360

.3438

.2874

.2778

.2506

.1884

197.000

.4905

.2975

.2150

.1637

210.000

.4750

.3057

220.000

.2544

232.000

.3153

.2487

UPWT 1059 (IH4) 01-T22-18N16 EXTERNAL TANK

(MQ3TBB)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = -5.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE FL

X/LT .9250 .9350 .9370 .9750

THETA

123.000	.2722			
151.000		.2176		
180.000			.1313	.0438
210.000			.1884	

MACH ( 2 ) = 4.600 ALPHA ( 3 ) = .000 PINF = .16570 Q(PSI) = 2.4551 RN/L = 3.0050 CPSTG = 1.8033

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE FL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000				1.6905	1.0658	.4126								.2490
45.000														.1371
67.500										.2106		.2617		.1399
90.000						.1872	.1730	.1956	.4498	1.7694		.3069		.1820
112.500								.1941	.2031	.1790		.2632		.1444
135.000										.2001		.1775	.1369	.1384
157.500														.2344
167.000														.2499
180.000	4.5987	2.5404	2.3424	1.6795	1.0520	.4095	.2038	.2073		.2131		.2073	.2092	.2480
197.000					1.0685	.4205				.2151				.1763
210.000						.4240								.1608
220.000														
225.000												.2189		
232.000														.2054

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000								.1660				.1619		
45.000								.1348				.1571		.1954
67.500					.0888			.1444	.1369	.1520	.1578	.1485		.2558
90.000		.1023		.0903		.1053		.1247		.1717	.1711	.1885	.1885	.2349
112.500		.1053		.1008		.0993		.1485	.1514	.1908	.2436	.2558	.2581	.2465
123.000													.2227	.2129
135.000		.2557		.1835		.2587		.2651	.2163	.2297	.1879	.1746	.1792	.1868
157.500	.2189	.3003	.3197	.3507		.3332		.2087	.2945	.2323	.1926	.1771	.1429	.1211
161.000	.3235													
166.000				.4902						.2317				
180.000	.3914	.6587	.5774	.4960	.3991	.3797	.1918	.2764	.3516	.2199	.2404	.2019	.1479	.1336
197.000				.4495						.2274				.1416
210.000								.2410				.1789		
220.000				.2771						.2361				
232.000								.2075				.1665		

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T22-SIN16 EXTERNAL TANK

(MQ3TBB)

MACH ( 2 ) = 4.600 ALPHA ( 3 ) = .000

SECTION ( 1 ) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA	.9250	.9350	.9370	.9750
123.000	.2158			
151.000		.1771		
180.000			.1037	.0441
210.000			.1485	

MACH ( 2 ) = 4.600 ALPHA ( 4 ) = 5.000 PINF = .16570 Q(PSI) = 2.4551 RN/L = 3.0050 CPSTG = 1.8033

SECTION ( 1 ) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA	.0000	.0050	.0100	.0400	.0800	.1500	.2000	.2500	.2750	.3000	.3250	.3350	.3500	.3750	.4000
.000				2.0896	1.4069	.5705									.3431
45.000															.1457
67.500										.2529			.4170		.2529
90.000							.1845	.1656	.1912	.5239			.3206		.1957
112.500									.1626	.1550	.2333		.1686		.0888
135.000											.1581		.1385	.1415	.1520
157.500															.2055
167.000															.1881
180.000	4.6097	2.1230	1.9301	1.3287	.7850	.2786	.1416	.1706		.1687			.1629	.1609	.2171
197.000					.8035	.2914				.1822					.1687
210.000						.3018									.1590
220.000															
225.000												.1609			
232.000															.1221

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA	.4250	.4500	.4750	.5000	.5250	.5500	.5750	.6000	.6500	.7000	.7500	.8000	.8500	.8750	.9000
.000								.2462				.2115			
45.000								.2080				.2062			.2532
67.500				.1837				.2084	.1915	.1962	.2049	.2095			.2832
90.000		.1295		.1054		.1189		.1213	.1648	.1921	.2339	.2594			.3285
112.500		.0873		.0828		.0903		.1341	.1393	.1770	.1991	.2380	.2356		.2815
123.000													.2124	.1997	.2449
135.000		.1204		.0828		.0828		.1248	.1672	.1747	.1828	.1521	.1532		.1822
157.500	.1667	.1842	.2230	.1939		.1939		.3009	.2212	.2133	.1783	.1434	.1385		.1263
161.000	.1997														
166.000				.4498						.2323					
180.000	.3955	.6398	.4963	.6921	.3063	.1881	.3953	.3616	.2464	.2323	.1802	.1612	.1428		.1244
197.000				.2792						.2170					.1465
210.000								.2353				.1575			
220.000				.1629						.2035					
232.000								.1103				.1722			

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T22-S8416 EXTERNAL TANK

(MQ3TBB)

MACH ( 2 ) = 4.600 ALPHA ( 4 ) = 5.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT	.9250	.9350	.9370	.9750
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THETA

123.000	.3326			
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151.000		.2114		
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180.000			.1171	.0729
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210.000			.1593	
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DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T22-SBN16 SOLID RCKT. BSTR.

(MQ3SBB) ( 15 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 3.000 BETA = .000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -10.000 PINF = .32910 Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) SOLID RCKT. BSTR

## DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	6.7308		.8790	.8418		.8636							.1295		
180.000			1.8787			1.6811					.6258		.8452		
225.000										.7078			.8860		.6804
247.500												.4551	.7893	.7273	.6214
260.000								5.8757							
270.000		1.9383	1.3066	.9226	.7412	1.3461	3.6399		.2831	.2150	.2521	.2570	.4309	.4249	.3326
315.000											.0696				
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900			
PSI															
90.000	.1295	.3478	.0839					.2472				.1942			
180.000	.5050	1.2573	.2691	.4506				.9911			.7759	.5705			
210.000					.4990	1.6404		.6593		.4386					
215.000							.4400		.1768		.1028				
225.000		1.0457	.4387	.2156				.4112			.2933				
240.000								.1851			.1755	.1803			
247.500	.5065														
270.000	.2827	1.7096	.1783	.1115				.1292				.5566			
315.000	.1285														

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = -5.000 PINF = .32910 Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) SOLID RCKT. BSTR

## DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	6.9639		.9078	.8989		.9065							.2263		
180.000				1.4565		1.2795					.3995		.3140		
225.000										.4052			.6638		.6160
247.500												.2661	.4814	.6070	.5921
260.000								3.3030							
270.000		1.9564	1.3529	.9353	.8675	1.3096	2.8524		.2690	.2777	.2268	.1555	.2302	.3499	.3140
315.000												.0733			

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(MQ3SBB)

DEPENDENT VARIABLE PL

DEPENDENT VARIABLE PL

[illegible]

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01-T22-S8N16 SOLID RCKT. BSTR.

(MQ3S88)

MACH (1) = 3.700 ALPHA (4) = 5.000 PINF = .32910 Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION (1) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	6.9390		.9086	.9169		.9278							.2392		
180.000				.7654		.6763					.1413		.2375		
225.000										.2243			.2420		.4586
247.500												.1091	.2062	.4168	.4810
260.000								3.3174							
270.000		1.9929	1.3894	.9475	.9398	1.3495	2.6978		.2764	.2886	.2284	.1598	.1763	.3481	.4795
315.000											.2943				
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900			
PSI															
90.000	.3285	.8171	.2451					.6556				.6855			
180.000	.3481	.6919	.2208	.5046				.9379			.8820	.7032			
210.000					.4158	1.5117		.6666		.4703					
215.000							.3476		.1718		.1227				
225.000		.9701	.2017	.2313				.4294			.3953				
240.000								.3258			.2972	.2798			
247.500	.4108														
270.000	.4153	1.4297	.1982	.1418				.2611				.5577			
315.000	.3660														

MACH (2) = 4.600 ALPHA (1) = -10.000 PINF = .16570 Q(PSI) = 2.4551 RN/L = 3.0050 CPSTG = 1.8033

SECTION (1) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	5.5569		.5856	.5458		.5620							.0593		
180.000				1.3711		1.1998					.3492		.3523		
225.000										.4415			.5519		.3690
247.500												.2631	.4431	.5081	.3690
260.000								2.1434							
270.000		1.4847	.9830	.6444	.5302	.9756	1.3566		.1798	.1571	.1671	.1452	.2057	.2843	.2132
315.000											.0439				
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900			
PSI															
90.000	.0468	.2949	.0733					.1854				.1316			
180.000	.3145	.8220	.1588	.2976				.6534			.6206	.4626			
210.000					.3349	1.1188		.5085		.3158					
215.000							.2302		.1162		.0724				
225.000		.7574	.2932	.1520				.2379			.1941				
240.000								.1066			.0971	.1298			

UPWT 1059 (IH4) 01-T22-18N16 SOLID RCKT. BSTR.

(MQ3SBB)

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -10.000

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9300	.9400	.9500	.9600	.9900
PSI											
247.500	.3085										
270.000	.1799	1.0853	.1152	.0584			.0565				.3513
315.000	.0680										

PSI

247.500 .3085

270.000 .1799 1.0853 .1152 .0584

315.000 .0680

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = -5.000 PINF = .16570 Q(PSI) = 2.4551 RN/L = 3.0050 CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	6.0706		.6172	.6039		.6077								.1163	
180.000			1.0887		.9229						.2134			.1696	
225.000										.3060				.2146	.3452
247.500												.1471	.2146	.3617	.3452
260.000							1.6434								
270.000		1.6212	1.0643	.6747	.6165	.9493	1.3686	.1801	.1818	.1473	.0946	.1081	.2086	.1891	
315.000											.0495				

PSI

90.000 6.0706

180.000

225.000

247.500

260.000

270.000

315.000

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9300	.9400	.9500	.9600	.9900
PSI											
90.000	.1139	.3462	.0839				.1991				.2038
180.000	.2566	.5402	.1241	.2112			.4444			.5412	.4149
210.000					.2372	.9365	.4335		.2454		
215.000							.2663	.1009		.0654	
225.000		.6067	.2255				.1813			.1363	
240.000							.1050			.0900	.1343
247.500	.2882										
270.000	.1756	1.0511	.1241	.0722			.0843				.3464
315.000	.1141										

PSI

90.000 .1139 .3462 .0839

180.000 .2566 .5402 .1241 .2112

210.000

215.000

225.000 .6067 .2255

240.000

247.500 .2882

270.000 .1756 1.0511 .1241 .0722

315.000 .1141

MACH ( 2 ) = 4.600 ALPHA ( 3 ) = .000 PINF = .16570 Q(PSI) = 2.4551 RN/L = 3.0050 CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	6.2713		.6436	.6361		.6349								.1524	
180.000			.7808		.6432						.1459			.1009	
225.000										.1516				.1070	.2836
247.500												.0964	.1900	.3200	.2712
260.000							1.7792								
270.000		1.6683	1.1106	.7813	.7188	.9115	1.4103	.1827	.2722	.1519	.0810	.0945	.1205	.1510	

PSI

90.000 6.2713

180.000

225.000

247.500

260.000

270.000







UPWT 1059 (IH4) 01 ALONE

### ORBITER FUSELAGE

(MQ3BCA)

MACH ( 1 ) = 2.360      ALPHA ( 2 ) = 5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

[illegible]

X/LB	1.0250	1.0500
------	--------	--------

PHI		
.000	.4669	.4426

MACH ( 1 ) = 2.360    ALPHA ( 3 ) = 10.00    PINF = .48157    Q(PSI) = 1.8775    RN/L = 1.2100    CPSTG = 1.7063

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

[illegible]



TABULATED SOURCE DATA - 1H4

UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCA)

MACH ( 1 ) = 2.360      ALPHA ( 3 ) = 10.000

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------

PHI									
24.000	.7237								
31.500	.7336								
33.100		.6923							
35.000	.7352								
40.000	.7286	.6906							
45.000		.7088							
50.000	.6857								
51.600									.2402
57.000		.4174							
60.900		.4161							
65.000		.4147							
68.000									.2869
69.000		.4141							
79.300			.3477						
95.500			.3505		.3038				
95.700		.4120							
96.300	.6508								
103.000			.3376						
105.000									.1901
112.000			.3072						
117.500								.3275	.3146
120.800						.7519			
127.900			.5384						
129.500				.6712					
130.000					.6888	.4419		.4127	
135.000		.1854	.2929						
139.600					.5950				
144.000								.4391	
155.000	.8041								
180.000	.4723	.2596	.4060						
X/LB	1.0250	1.0500							
PHI									
.000	.5883	.5573							

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UPWT 1059 (1H4) 01 ALONIZ

### ORBITER FUSELAGE

(MQ3BCA)

MACH ( 1 ) = 2.360      ALPHA ( 4 ) = 20.000      PINF = .48 57

$$Q(\text{PSI}) = 1.8775$$

RN/L      =      1.2100

CPSTG = 1.7063

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE P/L

[illegible]

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UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCA)

MACH ( 1 ) = 2.360 ALPHA ( 4 ) = 20.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB 1.0250 1.0500

PHI  
.000 .9167 .8731

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000 PINF = .26532

Q (PSI) = 1.6163

RN/L = 1.2100

CPSTG = 1.7529

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB .0000 .0050 .0200 .0400 .0500 .0600 .0800 .1000 .1250 .1500 .1600 .1650 .1700 .1750 .1800

PHI	.000	10.000	20.000	24.500	39.000	163.000	174.000	180.000
.000	3.1231	1.7560	.8275	.5819		.4652	.4160	.3519
10.000								.3453
20.000								.3486
24.500								.3568
39.000								.4720
163.000								
174.000								
180.000	3.1231				.9659		.8082	.7989

X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8000 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI	.000	23.000	24.000	31.500	33.100	35.000	40.000	45.000	50.000	51.600	57.000	60.900	65.000	68.000	69.000	79.300	95.500	95.700	96.300	103.000	105.000	112.600	117.500	120.800
.000	.2763	.2730	.2701	.2730	.2617		.2921		.2153		.2014	.1959												
23.000		.2697																						
24.000	.2911																							
31.500	.3009																							
33.100		.2697																						
35.000	.3009																							
40.000	.3075	.2631																						
45.000		.2598																						
50.000	.3700																							
51.600																								
57.000		.2695																						
60.900		.2662																						
65.000		.2655																						
68.000																								
69.000		.2455																						
79.300						.2441																		
95.500						.2521		.2508																
95.700		.2261																						
96.300	.4133																							
103.000						.2528																		
105.000																								
112.600						.2501																		
117.500																								
120.800																								

.5465

.2782

.2749

.1090



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UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCA)

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
65.000		.2631													
68.000													.2226		
69.000		.2422													
79.300					.2073										
95.500					.2066		.2149								
95.700		.2212													
96.300	.4299														
103.000					.1989										
105.000															.0977
112.600					.1863										
117.500												.2324		.2240	
120.800									.5154						
127.900						.4337									
129.500								.5693							
130.000									.5517	.3362		.2708			
135.000		.1193				.1947									
139.600									.5089						
144.000												.3043			
155.000	.5995														
180.000	.4310	.1819			.1837										
X/LB	1.0250	1.0500													
PHI															
.000	.2542	.2399													

MACH ( 2 ) = 2.950 ALPHA ( 3 ) = 10.000 PINF = .26532 Q(P51) = 1.6163 RN/L = 1.2100 CPSTG = 1.7529

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	3.0900	2.2725	1.2416	.9206		.7578	.6583	.5935		.5021					
10.000								.5835							
20.000								.5852							
24.500								.5769							
39.000								.4987							
163.000														.8489	
174.000															
180.000	3.0900				.6029			.4858	.5202	.5564	.9346	1.1558	1.3262		1.2703

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OF POOR QUALITY

UPWT 1059 (IH4) 01 ALONE

## ORBITER FUSELAGE

(MQ3BCA)

MACH ( 2 ) = 2.950      ALPHA ( 3 ) = 10.000

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

[illegible]

TABULATED SOURCE DATA - 1H4

UPWT 1059 (IH4) 01 ALONE				ORBITER FUSELAGE		(MQ3BCA)	
MACH (2) =	2.950	ALPHA (4) =	20.000	PINF =	.26532	Q(PSI) =	1.6163
						RN/L =	1.2100
						CPSTG =	1.7529

DEPENDENT VARIABLE PL

[illegible]

UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCA)

MACH ( 2 ) = 2.950 ALPHA ( 4 ) = 20.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB 1.0250 1.0500

PHI

.000 .6041 .5748

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .13154 Q(PST) = 1.2605 RN/L = 1.2000 CPST6 = 1.7839

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB .0000 .0050 .0200 .0400 .0500 .0600 .0800 .1000 .1250 .1500 .1600 .1650 .1700 .1750 .1800

PHI

.000 2.3288 1.0726 .4377 .2756 .2093 .3507 .1583 .1243

10.000 .1396

20.000 .1430

24.500 .1481

39.000 .2656

163.000 1.1688

174.000 2.3288 .8100 .6716 .6614 .7465 1.6358 1.8816 1.9063 1.8322

180.000 X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8000 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI

.000 .1141 .1089 .1079 .1478 .1466 .1249 .0754 .0654 .0712

23.000 .1004

24.000 .1106

31.500 .1209

33.100 .1004

35.000 .1089

40.000 .1038 .0868

45.000 .0800

50.000 .1838

51.600 .1739

57.000 .1423

60.900 .1423

65.000 .1423

68.000 .1466

69.000 .1423

79.300 .1394

95.500 .1394 .1459

95.700 .1401

96.300 .2436

103.000 .1394

105.000 .1380 .0474

112.600 .1322 .1286

117.500 .3186

120.800



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UPWT 1059 (IH4) O1 ALONI:

ORBITER FUSELAGE

(MQ3BCA)

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
127.900						.2517									
129.500								.6345							
130.000									.4784	.2341		.1322			
135.000		.1394			.1315										
139.600									.5267						
144.000												.1566			
155.000	.5758														
180.000	.4986	.1398			.1410										

PHI

127.900

129.500

130.000

135.000

139.600

144.000

155.000

180.000

X/LB 1.0250 1.0500

PHI

.000

.0670

.0639

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .13154 Q(P51) = 1.2605 RN/L = 1.2000 CPSTG = 1.7839

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE FL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	2.3459	1.2638	.5529	.3610		.2756	.3275	.1972		.1437					
10.000								.1838							
20.000								.1888							
24.500								.1955							
39.000								.2724							
163.000														.9456	
174.000															
180.000	2.3459				.6428			.5146	.5109	.5766	1.2391	1.4719	1.5564		1.5122

PHI

.000

10.000

20.000

24.500

39.000

163.000

174.000

180.000

X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8000 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI

.000

23.000

24.000

31.500

33.100

35.000

40.000

45.000

50.000

51.600

57.000

60.900

.1337

.1270

.1256

.1350

.1256

.1448

.0929

.0851

.0887

.1236

.1370

.1520

.1287

.1470

.1520

.1203

.1186

.1938

.1355

.1328

.1220

UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCA)

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
65.000		.1321													
68.000													.1200		
69.000		.1308													
79.300					.1160										
95.500					.1126		.1126								
95.700		.1059													
96.300	.2306														
103.000					.1038										
105.000															.0485
112.600					.0998										
117.500												.1429		.1463	
120.800									.2740						
127.900						.2118									
129.500								.2638							
130.000									.3288	.2174		.1315			
135.000		.1011			.1038										
139.600									.3623						
144.000												.1497			
155.000	.4708														
180.000	.3962	.1288			.1294										
X/LB	1.0250	1.0500													
PHI															
.000	.0809	.0785													

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = 0.000 PINF = .13154 Q(PSI) = 1.2605 RN/L = 1.2000 CPSTG = 1.7839

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	2.3612	1.4805	.6971	.4717		.3669	.3226	.2630		.2084					
10.000								.2547							
20.000								.2597							
24.500								.2630							
39.000								.2845							
163.000															.7051
174.000															
180.000	2.3612				.5021			.3877	.3942	.4429	.8505	1.0531	1.2078		1.1922

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(MQ3BCA)

DEPENDENT VARIABLE PL

[illegible]

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UPWT 1059 (1H4) 01 ALONE

## ORBITER FUSELAGE

(MQ3BCA)

MACH ( 3 ) = 3.700    ALPHA ( 4 ) = 10.000    PINF = .13154

$$Q(\text{PSI}) = 1.2605$$
$$RN/L = 1.2000$$

CPSTG = 1.7839

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

[illegible]

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UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCA)

MACH ( 3) = 3.700 ALPHA ( 4) = 10.000

SECTION ( 1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB 1.0250 1.0500

PHI

.000 .1540 .1382

MACH ( 3) = 3.700 ALPHA ( 5) = 20.000 PINF = .13154

Q(P51) = 1.2605

RN/L = 1.2000

CPSTG = 1.7839

SECTION ( 1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB .0000 .0050 .0200 .0400 .0500 .0600 .0800 .1000 .1250 .1500 .1600 .1650 .1700 .1750 .1800

PHI

.000 2.2359 2.0636 1.2733 .9742 .8150 .6999 .6313 .5400

10.000

20.000

24.500

39.000

163.000

174.000

180.000

2.2359

.2397

.1840

.1998

.2352

.2162

.2447

.3208

.3902

.1958

X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8000 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI

.000 .4845 .4437 .4617 .4780 .4757 .5103 .3762 .3550 .3343

23.000

24.000

31.500

33.100

35.000

40.000

45.000

50.000

51.600

57.000

60.900

65.000

68.000

69.000

79.300

95.500

95.700

96.300

103.000

105.000

112.600

117.500

120.800

.1946

.0838

.074

.1013

.0980

.0507

.0858

.0466

.0858

.0736

.2267

.0676

.0635

.0365



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UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ38CA)

MACH ( 4) = 4.600 ALPHA ( 1) = -5.000

SECTION ( 1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7000	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
65.000		.0824													
68.000													.0660		
69.000		.0824													
79.300					.0653										
95.500					.0613		.0456								
95.700		.0817													
96.300	.1593														
103.000					.0572										
105.000															.0218
112.600					.0504										
117.500												.0613		.0585	
120.800									.1719						
127.900						.2025									
129.500								.4552							
130.000									.3372	.1440		.0592			
135.000		.0579			.0470										
139.600								.3567							
144.000												.0647			
155.000	.4264														
180.000	.3926	.0900			.0662										
X/LB	1.0250	1.0500													
PHI															
.000	.0309	.0297													

MACH ( 4) = 4.600 ALPHA ( 2) = .000 PINF = .66240-01 Q(PSI) = .98142 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	1.8225	.9650	.4011	.2470		.1769	.1451	.1125		.0864					
10.000								.1011							
20.000								.1060							
24.500								.1109							
39.000								.1663							
163.000														.6647	
174.000															
180.000	1.8225				.4547			.3487	.3459	.4010	.8397	1.0399	1.2220		1.2311

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DATE 20 APR 76

TABULATED SOURCE DATA - 1H4

PAGE 618

UPWT 1059 (1H4) (1 ALONE

## ORBITER FUSELAGE

(MQ3BCA)

MACH ( 4 ) = 4.600      ALPHA ( 2 ) = .000

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

[illegible]



DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 619

UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCA)

MACH (4) = 4.600 ALPHA (3) = 5.000 PINF = .66240-01 Q(PSI) = .98142 RN/L = 1.2000 CPSTG = 1.8033

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	1.8270	1.1272	.5093	.3273		.2433	.1955	.1587		.1220					
10.000								.1504							
20.000								.1570							
24.500								.1587							
39.000								.1821							
163.000														.4476	
174.000												.6566			
180.000	1.8270				.3448			.2488	.2534	.2899	.5097		.8710		.9101
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	.1002	.0885	.0832	.1086	.0796		.1076				.0572		.0499	.0541	
23.000		.0885													
24.000	.1019														
31.500	.1136														
33.100		.0936													
35.000	.1103														
40.000	.1153	.0936													
45.000		.0986													
50.000	.1236														
51.600															
57.000		.0725												.0400	
60.900		.0711													
65.000		.0704													
68.000														.0447	
69.000		.0698													
79.300					.0474										
95.500					.0467		.0467								
95.700		.0691													
96.300	.1497														
103.000					.0447										
105.000															.0230
112.600					.0440										
117.500												.0610		.0610	
120.800									.1090						
127.900						.0857									
129.500								.0820							
130.000									.1006	.0867		.0535			
135.000		.0413			.0427										
139.500									.0950						
144.000												.0603			
155.000	.2252														
180.000	.2292	.0794			.0433										

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OF POOR QUALITY

UPWT 1059 (IH4) O ALONE

ORBITER FUSELAGE

(MQ3BCA)

MACH ( 4 ) = 4.600 ALPHA ( 3 ) = 5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB 1.0250 1.0500

PHI

.000 .0444 .0395

MACH ( 4 ) = 4.600 ALPHA ( 4 ) = 10.000 PINF = .66240-01 Q(P51) = .98142 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB .0000 .0050 .0200 .0400 .0500 .0600 .0800 .1000 .1250 .1500 .1600 .1650 .1700 .1750 .1800

PHI

.000 1.8140 1.2917 .6410 .4379 .3396 .2825 .2407 .1856

10.000

20.000

24.500

39.000

163.000

174.000

180.000

X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8000 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI

.000 .1521 .1304 .1251 .1708 .1696 .1707 .1060 .0946 .1012

23.000

24.000

31.500

33.100

35.000

40.000

45.000

50.000

51.600

57.000

60.900

65.000

68.000

69.000

79.300

95.500

95.700

96.300

103.000

105.000

112.600

117.500

120.800

.0158

47

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ORBITER FUSELAGE

(MQ38CA)

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.9050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------

PHI

127.900

129.50¢

130.000

135.000

139.600

144.000

155.000

X/LB	1.0250	1.0500
------	--------	--------

PHI

.000

MACH ( 4 ) = 4.600 ALPHA ( 5 ) = 20.000 PINF = .66240-01 Q(PSI) = .98142 RN/L = 1.2000 CPSTG = 1.8033

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

PHI

.000

10.000

20.000

24.500

39.000

163.000

174.000

180.000	1.6911	.1640	.1090	.1127	.1628	.1292	.1655	.1938
---------	--------	-------	-------	-------	-------	-------	-------	-------

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------

PHI

000

23.000

24.000

51.500

33.100

35.000

40.000

45.000

50.000

51.600

57,000

60.900

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (1H4) 01 ALONE

### ORBITER FUSELAGE

(MQ3BCA)

MACH ( 4 ) = 4.600      ALPHA ( 5 ) = 20.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

[illegible]

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 623

UPWT 1059 (IH4) 01 ALONE

ORB. UPPER WING

(MQ3UCA) ( 15 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 1.200 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = .48157 Q(PSI) = 1.8775 RN/L = 1.2100 CPSTG = 1.7063

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.8291		
.200	.4428	.4459	.6500
.600	.2487	.2592	
.800		.2574	
.900		.9297	.3138
.950		.2903	

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = .48157 Q(PSI) = 1.8775 RN/L = 1.2100 CPSTG = 1.7063

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.6612		
.200	.2744	.2949	.4776
.600	.1839	.1875	
.800		.1857	
.900		.9069	.2261
.950		.2352	

MACH ( 1 ) = 2.360 ALPHA ( 3 ) = 10.000 PINF = .48157 Q(PSI) = 1.8775 RN/L = 1.2100 CPSTG = 1.7063

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.3795		
.200	.2138	.1957	.3450
.600	.1388	.1487	
.800		.1470	
.900		.8963	.1952
.950		.2033	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORB. UPPER WING

(MQ3UCA)

MACH ( 1 ) = 2.350 ALPHA ( 4 ) = 20.000 PINF = .48157

Q(PSI) = 1.8775

RN/L = 1.2100

CPSTG = 1.7063

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.2064		
.200	.1317	.0889	.1877
.600	.0882	.0901	
.800		.0901	
.900		.9457	.1883
.950		.1845	

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000 PINF = .26532

Q(PSI) = 1.6163

RN/L = 1.2100

CPSTG = 1.7529

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.5737		
.200	.2230	.2833	.4619
.600	.1159	.1242	
.800		.1224	
.900		.4240	.1644
.950		.1615	

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = .26532

Q(PSI) = 1.6163

RN/L = 1.2100

CPSTG = 1.7529

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.4269		
.200	.1615	.2131	.3554
.600	.0985	.1057	
.800		.1081	
.900		.4484	.1573
.950		.1441	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) O ALONE

OR3, UPPER WING

(MQ3UCA)

MACH ( 2 ) = 2.950 ALPHA ( 3 ) = 10.000 PINF = .26532

Q(PSI) = 1.6163

RN/L = 1.2100

CPSTG = 1.7529

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.2231		
.200	.1014	.1278	.2602
.600	.0762	.0821	
.800		.0856	
.900		.4378	.1213
.950		.1266	

MACH ( 2 ) = 2.950 ALPHA ( 4 ) = 20.000 PINF = .26532

Q(PSI) = 1.6163

RN/L = 1.2100

CPSTG = 1.7529

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.1140		
.200	.0646	.0699	.1628
.600	.0546	.0605	
.800		.0682	
.900		.4489	.1169
.950		.1122	

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .13154

Q(PSI) = 1.2605

RN/L = 1.2000

CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.4254		
.200	.1746	.2372	.4171
.600	.0661	.0726	
.800		.0755	
.900		.2088	.1392
.950		.1074	

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DATE 20 APR 76

TABULATED SOURCE DATA - 1H4

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UPWT 1059 (1H4) 01 ALONE

ORB. UPPER WING

(MQ3UCA)

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .13154

Q(PST) = 1.2605

RN/L = 1.2000

CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.3500		
.200	.1253	.1779	.3144
.600	.0538	.0591	
.800		.0686	
.900		.2110	.1164
.950		.1005	

MACH ( 3 ) = 3.700 ALPHA ( 3 ) = 5.000 PINF = .13154

Q(PST) = 1.2605

RN/L = 1.2000

CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.2554		
.200	.0748	.1158	.2369
.600	.0422	.0493	
.800		.0564	
.900		.2126	.1004
.950		.0909	

MACH ( 3 ) = 3.700 ALPHA ( 4 ) = 10.000 PINF = .13154

Q(PST) = 1.2605

RN/L = 1.2000

CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.1362		
.200	.0684	.0986	.2065
.600	.0528	.0632	
.800		.0690	
.900		.2343	.1143
.950		.1050	



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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORB. UPPER WING

(MQ3UCA)

MACH ( 3 ) = 3.700 ALPHA ( 5 ) = 20.000 PINF = .13154 Q(PSI) = 1.2605 RN/L = 1.2000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.0680		
.200	.0411	.0558	.1262
.600	.0387	.0417	
.800		.0487	
.900		.2202	.0957
.950		.0933	

MACH ( 4 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .66240-01 Q(PSI) = .98142 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.2645		
.200	.0966	.1586	.3243
.600	.0244	.0381	
.800		.0376	
.900		.1168	.1282
.950		.0733	

MACH ( 4 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .66240-01 Q(PSI) = .98142 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.2207		
.200	.0670	.1097	.2265
.600	.0231	.0344	
.800		.0397	
.900		.1227	.0990
.950		.0765	

UPWT 1059 (1H4) 01 ALONE

ORB. UPPER WING

(MQ3UCA)

MACH (4) = 4.600 ALPHA (3) = 5.000 PINF = .66240-01 Q(PS1) = .98142 RN/L = 1.2000 CPSTG = 1.8033

SECTION (1) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.1631		
.200	.0439	.0788	.1672
.600	.0190	.0296	
.800		.0373	
.900		.1227	.1037
.950		.0741	

MACH (4) = 4.600 ALPHA (4) = 10.000 PINF = .66240-01 Q(PS1) = .98142 RN/L = 1.2000 CPSTG = 1.8033

SECTION (1) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.0957		
.200	.0416	.0703	.1394
.600	.0393	.0393	
.800		.0457	
.900		.1365	.1002
.950		.0832	

MACH (4) = 4.600 ALPHA (5) = 20.000 PINF = .66240-01 Q(PS1) = .98142 RN/L = 1.2000 CPSTG = 1.8033

SECTION (1) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.0592		
.200	.0299	.0449	.0934
.600	.0186	.0317	
.800		.0389	
.900		.1317	.0946
.950		.0772	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORB. LOWER WING

(MQ3LCA) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 1.200 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = .48157 Q(PSI) = 1.8775 RN/L = 1.2100 CPSTG = 1.7063

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW .2500 .3011 .3480 .4000 .5000 .6000 .7500 .8500 .9500 .9980

X/CW

.000					1.5082		1.6123		.3365
.001	.4990	.5056		1.1618	.6299	1.5065	.6611		
.002					.5056		.6232		
.003					1.8649		1.7403		
.004					.6128		.7692		
.005					.5487		.6225		
.025			.6117	.5686		.6200			
.045			.6200						
.100					.5160		.6100	.6316	
.153	.4923								
.177				.5516					
.200			.5541						
.299	.5584								
.302			.5528		.5597				
.428				.5528					
.444	.5572								
.487			.5509						
.559		.5484							
.600				.5522					
.700				.4438					
.736	.5472								
.800				.3793					
.850				.3744					
.900		.3167		.3062	.3031		.3101		

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = .48157 Q(PSI) = 1.8775 RN/L = 1.2100 CPSTG = 1.7063

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW .2500 .3011 .3480 .4000 .5000 .6000 .7500 .8500 .9500 .9980

X/CW

.000				1.7795		1.6704		.1966
.001	.5717	.5584	1.5027	.9302	1.7147	.9115		
.002				.7864		.8779		
.003				1.8018		1.5424		
.004				1.1515		1.0853		
.005				.8509		.8750		

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 630

UPWT 1059 (IH4) 01 ALONE

ORB. LOWER WING

(MQ3LCA)

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.025				.8624	.9087		.9823			
.045				.8724						
.100						.7757		.9070	.9037	
.153	.6047									
.177					.7300					
.200				.6570						
.299	.5909									
.302				.6796			.8576			
.428						.7782				
.444	.6129									
.487					.7619					
.559				.7190						
.600						.7196				
.700						.6128				
.736	.6512									
.800						.5256				
.850						.4675				
.900				.4215		.4227	.4463		.4390	

MACH ( 1 ) = 2.360 ALPHA ( 3 ) = 10.000 PINF = .48157

Q(PSI) = 1.8775

RN/L = 1.2100

CPSTG = 1.7063

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						1.9605		1.6584		.1470
.001		.5518	.4577		1.6666	1.2963	1.8786	1.3038		
.002						1.0676		1.2397		
.003						1.6089		1.2590		
.004						1.4980		1.4815		
.005						1.1765		1.2590		
.025				.9450	1.1896		1.2724			
.045				.9715						
.100						1.0916		1.2811	1.1460	
.153	.7121									
.177					.9711					
.200				.8261						
.299	.6996									
.302				.8499			1.1500			
.428						1.0132				
.444	.7235									
.487					.9834					
.559				.8989						
.600						.9303				

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 / LONE

ORB. LOWER WING

(MQ3LCA)

MACH ( 1 ) = 2.360 ALPHA ( 3 ) = 10.000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.700						.8018				
.736	.7987									
.800					.6918					
.850					.6182					
.900				.5513	.5602	.6003		.5683		

MACH ( 1 ) = 2.360 ALPHA ( 4 ) = 20.000 PINF = .48157 Q(PSI) = 1.8775 RN/L = 1.2100 CPSTG = 1.7063

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						2.0407		1.4400		.1359
.001		.6133	.4708		1.6652	1.8472	2.0202	2.0013		
.002						1.6435		1.8747		
.003						1.2352		.8127		
.004						1.9998		2.1115		
.005						1.7388		1.9093		
.025				1.1171	1.5612		1.9511			
.045				1.2189						
.100						1.6196		1.9403	1.4334	
.153	.9714									
.177					1.4145					
.200				1.1903						
.299	1.0218									
.302				1.2141			1.7016			
.428						1.4831				
.444	1.0700									
.487					1.4678					
.559				1.3327						
.600						1.4496				
.700						1.2134				
.736	1.1829									
.800						1.0578				
.850						.9609				
.900				.8689		.8725	.9424		.8703	

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TABULATED SOURCE DATA - IH4

PAGE 632

UPWT 1059 (1H4) 01 ALONE		ORB. LOWER WING		(MQ3LCA)	
MACH (2) =	2.950	ALPHA (1) =	.000	PINF =	.26532
				Q(PSI) =	1.6163
				RN/L =	1.2100
				CPSTG =	1.7529

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/8W	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				1.2184	1.3464		.2220
.001	.2730	.2828	.8979	.450E	1.2150	.4481	
.002				.338E		.3941	
.003				1.5563		1.4829	
.004				.6237		.5821	
.005				.381E		.4000	
.025		.3585	.3815		.4391		
.045		.3618					
.100				.3344		.4177	.4456
.153	.2680						
.177			.2594				
.200		.2404					
.299	.2546						
.302		.2582			.3644		
.428				.2974			
.444	.2641						
.487			.2979				
.559		.2914					
.600				.2748			
.700				.235E			
.736	.2772						
.800				.1947			
.850				.172E			
.900		.1608		.154E	.1584		.1919

MACH (2) = 2.950    ALPHA (2) = 5.000    PINF = .26532    Q(PSI) = 1.6163    RN/L = 1.2100    CPSTG = 1.7529

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/8W	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				1.4283	1.3942		.1515
.001	.3723	.3632	1.2766	.7556	1.3993	.6749	
.002				.5950		.6087	
.003				1.4744		1.3106	
.004				.8811		.9180	
.005				.6571		.6198	
.025		.6096	.7155		.7282		
.045		.6132					
.100				.5248		.7009	.6936
.153	.3961						
.177			.4447				
.200		.3849					
.299	.3415						

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORB. LOWER WING

(MQ3LCA)

MACH (2) = 2.950 ALPHA (2) = 5.000

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.302				.3984			.5683			
.428						.4892				
.444	.3521									
.487					.4699					
.559				.4283						
.600						.4476				
.700						.3780				
.736	.3738									
.800						.3176				
.850						.2775				
.900				.2399		.2470	.2680	.2791		

MACH (2) = 2.950 ALPHA (3) = 10.000 PINF = .26532 Q(PSI) = 1.6163 RN/L = 1.2100 CPSTG = 1.7529

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000						1.6256		1.4140		.1114
.001		.3475	.2876		1.3646	.9443	1.5693	.9571		
.002						.7731		.8848		
.003						1.3730		1.1119		
.004						1.1631		1.1268		
.005						.8578		.9042		
.025				.6484	.8878		.9576			
.045				.6750						
.100						.7442		.9194	.8462	
.153	.4555									
.177					.6322					
.200				.5217						
.299	.4365			.5376			.8008			
.302						.6880				
.428										
.444	.4512									
.487					.6533					
.559				.5711						
.600						.6245				
.700						.5201				
.736	.4859									
.800						.4369				
.850						.3822				
.900				.3226		.3372	.3803	.3889		

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TABULATED SOURCE DATA - 1H4

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UPWT 1059 (1H4) 01 ALONE

ORB. LOWER WING

(MQ3LCA)

MACH ( 2 ) = 2.950      ALPHA ( 4 ) = 20.000      PINF = .26532

$$Q(PSI) = 1.6163$$
$$RN/L = 1.2100$$

CPSTG = 1.7529

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				1.8772	1.3757		.1148
.001	.4409	.3427	1.4891	1.4934	1.8158	1.6389	
.002				1.2591		1.5067	
.003				1.1911		.7951	
.004				1.6878		1.8103	
.005				1.3915		1.5510	
.025		.8584	1.2765		1.6258		
.045		.9350					
.100				1.2788		1.6085	1.2005
.153	.7087						
.177			1.0510				
.200		.8652					
.299	.7246						
.302		.8966			1.3399		
.428				1.1571			
.444	.7618						
.487			1.0992				
.559		.9663					
.600				1.0720			
.700				.9218			
.736	.8373						
.800				.7878			
.850				.7028			
.900		.6113		.6299	.7034		.6612

MACH ( 3 ) = 3.700    ALPHA ( 1 ) = -5.000    PINF = .13154

$$Q(\text{PSI}) = 1.2605$$

RN/L = 1.2000

CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				.7534		.9992		.1362
.001		.0800	.0698	.4988	.1975	.7988	.2189	
.002					.1379		.1680	
.003					1.1767		1.2655	
.004					.3331		.3030	
.005					.1617		.1815	
.025			.0800	.1345		.1992		
.045			.0766					
.100					.1314		.1838	.2077
.153	.0919							
.177				.0717				
.200			.0693					
.299	.0791							



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UPWT 1059 (IH4) 01 ALONE

ORB. LOWER WING

(MQ3LCA)

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.302				.0742			.1361			
.428						.0871				
.444	.0766									
.487					.0822					
.559				.1435						
.600						.0791				
.700						.0633				
.736	.1453									
.800						.0597				
.850						.0651				
.900				.0609		.0651	.0597		.0747	

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .13154 Q(PS1) = 1.2605 RN/L = 1.2000 CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						.8790		1.0453		.1320
.001		.1303	.1320		.6533	.2941	.9226	.3145		
.002						.2105		.2523		
.003						1.1392		1.1631		
.004						.4377		.4311		
.005						.2406		.2664		
.025				.1855	.2456		.2957			
.045				.1871						
.100						.1940		.2724	.2957	
.153	.1270									
.177					.1256					
.200				.1062						
.299	.1162									
.302				.0998			.2077			
.428						.1221				
.444	.1162									
.487					.1203					
.559				.1209						
.600						.1221				
.700						.1038				
.736	.1226									
.800						.0857				
.850						.0773				
.900				.0700		.0700	.0754		.0957	

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UPWT 1059 (1H4) 01 ALONE

ORB. LOWER WING

(MQ3LCA)

MACH ( 3 ) = 3.700 ALPHA ( 3 ) = 5.000 PINF = .13154

Q(PSI) = 1.2605      RN/L = 1.2000      CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				1.0658	1.0965	.0976
.001	.1753	.1720	.8436	.4483	1.0709	.4637
.002				.3358		.3871
.003				1.1307		1.0624
.004				.6080		.5955
.005				.3821		.4046
.025		.3193	.4185		.4483	
.045		.3209				
.100				.3138		.4086
.153	.1853					.4086
.177			.2485			
.200		.2041				
.299	.1743					
.302		.2093			.3392	
.428				.2795		
.444	.1778					
.487			.2550			
.559		.2257				
.600				.2474		
.700				.1908		
.736	.1690					
.800				.1442		
.850				.1193		
.900		.0975		.1066	.1181	.1393

MACH ( 3 ) = 3.700    ALPHA ( 4 ) = 10.000    PINF = .13154

Q(PSI) = 1.2035      RN/L = 1.2000      CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				1.2518	1.1324	.0828
.001	.1972	.1657	1.0174	.6462	1.2314	.6563
.002				.5054		.5731
.003				1.1068		.9312
.004				.8264		.8036
.005				.5683		.5919
.025		.4043	.5965		.6578	
.045		.4209				
.100				.4714		.6031
.153	.2635					.5253
.177			.3753			
.200		.2986				
.299	.2447					

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 / LONE

ORB. LOWER WING

(MQ3LCA)

MACH ( 3 ) = 3.700 ALPHA ( 4 ) = 10.000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.302				.3068			.5052			
.428						.4256				
.444	.2500									
.487					.3893					
.559				.3302						
.600						.3794				
.700						.3031				
.736	.2693									
.800						.2467				
.850						.2085				
.900				.1594		.1794	.2121		.2242	

MACH ( 3 ) = 3.700 ALPHA ( 5 ) = 20.000 PINF = .13154

Q(PSI) = 1.2605

RN/L = 1.2000

CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						1.5874		.9357		.0865
.001		.2790	.2219		1.2541	1.1192	1.5447	1.0632		
.002						.8875		.9800		
.003						1.0566		.6069		
.004						1.3280		1.1779		
.005						1.0125		1.0105		
.025				.5906	.9299		1.2258			
.045				.6428						
.100						.9041		1.0234	.7635	
.153	.4568									
.177					.7165					
.200				.5766						
.299	.4745									
.302				.5970			.9129			
.428						.8243				
.444	.4973									
.487					.7474					
.559				.6354						
.600						.7474				
.700						.6189				
.736	.5462									
.800						.5176				
.850						.4490				
.900				.3659		.3944	.4181		.4229	

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UPWT 1059 (1H4) 01 A\_ONE

ORB. LOWER WING

(MQ3LCA)

MACH ( 4 ) = 4.600    ALPHA ( 1 ) = -5.000    PINF = .66240-01    Q(PSI) = .98142    RN/L = 1.2000    CPSTG = 1.8033

SECTION (1) ORB. LOWER WING

DEPENDENT VARIAE\_E PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				.5515		.8726		.0920
.001	.0531	.0478		.1416	.6911	.1703		
.002				.1009		.1195		
.003				.9320		1.1228		
.004				.2548		.2620		
.005				.1151		.1337		
.025		.0549	.1009		.1575			
.045		.0496						
.100				.0931		.1434	.1575	
.153	.0584							
.177			.0594					
.200		.0607						
.299	.0613							
.302		.0601			.0842			
.428				.0545				
.444	.0625							
.487			.0415					
.559		.0681						
.600				.0452				
.700				.0357				
.736	.0700							
.800				.0321				
.850				.0309				
.900		.0321		.0309	.0339		.0449	

MACH ( 4 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .66240-01 Q(PSI) = .98142 RN/L = 1.2000 CPSTG = 1.8033

SECTION (1) ORB. LOWER WING

DEPENDENT\_VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				.6918		.8862		.0848
.001	.0701	.0685	.4778	.2038	.7776	.2444		
.002				.1337		.1769		
.003				.9020		.9860		
.004				.3363		.3408		
.005				.1565		.1716		
.025			.1011	.1631	.2234			
.045			.0962					
.100				.1292		.1957	.1973	
.153	.0701							
.177				.0705				
.200			.0723					
.299	.0723							

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORB. LOWER WING

(MQ3LCA)

MACH ( 4 ) = 4.600 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.302				.0711			.1269			
.428						.0858				
.444	.0717									
.487					.0546					
.559				.0552						
.600						.0723				
.700						.0629				
.736	.0558									
.800						.0527				
.850						.0467				
.900				.0432		.0443	.0503		.0656	

MACH ( 4 ) = 4.600 ALPHA ( 3 ) = 5.000 PINF = .66240-01 Q(PSI) = .98142 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000						.8541		.8996		.0752
.001		.0986	.0952		.6482		.9014	.3292		
.002						.2322		.2743		
.003						.9154		.8541		
.004						.4656		.4494		
.005						.2690		.2891		
.025				.2021	.2974		.3492			
.045				.2038						
.100						.2103		.2773	.2656	
.153	.1069									
.177					.0808					
.200				.0826						
.299	.0850									
.302				.0820			.2130			
.428						.1687				
.444	.0832									
.487					.1404					
.559				.1150						
.600						.1434				
.700						.1022				
.736	.0855									
.800						.0718				
.850						.0584				
.900				.0432		.0511	.0614		.0779	



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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORB. LOWER WING

(MQ3LCA)

MACH ( 4 ) = 4.600 ALPHA ( 5 ) = 20.000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.302

.4176

.6199

.428

.6193

.444

.3497

.487

.5468

.559

.4655

.600

.5357

.700

.4345

.736

.3872

.800

.3488

.850

.2967

.900

.2469

.2553

.2763

.2984

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UPWT 1059 (IH4) 01 ALONE

ORB. VERT. TAIL

(MQ3VCA) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 1.200 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = .48157 Q(PSI) = 1.8775 RN/L = 1.2100 CPSTG = 1.7063

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.8035	1.6567	1.4280	1.7113
.300	.9465	.8845	.8355	
.500		.8151		
.700		.3502		
.900	.2764	.3062	.3669	

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = .48157 Q(PSI) = 1.8775 RN/L = 1.2100 CPSTG = 1.7063

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.6226	1.4980	1.2642	1.4553
.300	.8211	.7860	.7593	
.500		.7127		
.700		.3076		
.900	.2525	.2683	.3246	

MACH ( 1 ) = 2.360 ALPHA ( 3 ) = 10.000 PINF = .48157 Q(PSI) = 1.8775 RN/L = 1.2100 CPSTG = 1.7063

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.5594	1.3358	1.0969	1.2795
.300	.7588	.7181	.6954	
.500		.6493		
.700		.2906		
.900	.2302	.2523	.3043	



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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORB. VERT. TAIL

(MQ3VCA)

MACH ( 1 ) = 2.360 ALPHA ( 4 ) = 20.000 PINF = .48157

Q(PSI) = 1.8775

RN/L = 1.2100

CPSTG = 1.7063

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.8718	1.2556	.8738	.9962
.300	.6730	.6432	.5912	
.500		.5775		
.700		.2317		
.900	.1660	.1911	.2502	

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000 PINF = .26532

Q(PSI) = 1.6163

RN/L = 1.2100

CPSTG = 1.7529

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.4147	1.2628	1.1109	1.3669
.300	.5061	.4511	.3888	
.500		.4680		
.700		.2449		
.900	.1645	.2122	.2110	

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = .26532

Q(PSI) = 1.6163

RN/L = 1.2100

CPSTG = 1.7529

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.2628	1.1570	.9161	1.1262
.300	.5228	.4618	.3954	
.500		.4618		
.700		.2117		
.900	.1507	.1777	.2082	

MACH ( 2 ) = 2.950 ALPHA ( 3 ) = 10.000 PINF = .26532

Q(PSI) = 1.6163

RN/L = 1.2100

CPSTG = 1.7529

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.1546	.9992	.8278	.9836
.300	.4472	.4065	.3579	
.500		.3919		
.700		.1634		
.900	.1148	.1367	.1671	

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORB. VERT. TAIL

(MQ3VCA)

MACH ( 2 ) = 2.950 ALPHA ( 4 ) = 20.000 PINF = .26532

Q(PSI) = 1.6163

RN/L = 1.2100

CPSTG = 1.7529

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000 1.3174 .8722 .6130 .6918

.300 .2871 .3643 .3332

.500 .3152

.700 .1244

.900 .0891 .1041 .1448

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .13154

Q(PSI) = 1.2605

RN/L = 1.2000

CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000 .9697 1.1580 1.0163 1.3013

.300 .2533 .2407 .2334

.500 .2352

.700 .1182

.900 .1194 .1098 .0995

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .13154

Q(PSI) = 1.2605

RN/L = 1.2000

CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000 1.0112 .8703 .7813 1.0095

.300 .2215 .2028 .1865

.500 .1992

.700 .1056

.900 .0923 .0990 .0869

MACH ( 3 ) = 3.700 ALPHA ( 3 ) = 5.000 PINF = .13154

Q(PSI) = 1.2605

RN/L = 1.2000

CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000 .8840 .7809 .6167 .7722

.300 .2326 .1878 .1678

.500 .1902

.700 .0945

.900 .0757 .0824 .0781

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORB. VERT. TAIL

(MQ3VCA)

MACH ( 3 ) = 3.700 ALPHA ( 4 ) = 10.000 PINF = .13154 Q(PSI) = 1.2605 RN/L = 1.2000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	.7862	.6814	.5695	.6849
.300	.1794	.1721	.1661	
.500		.1697		
.700		.0746		
.900	.0545	.0612	.0715	

MACH ( 3 ) = 3.700 ALPHA ( 5 ) = 20.000 PINF = .13154 Q(PSI) = 1.2605 RN/L = 1.2000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	.7590	.5911	.3533	.4250
.300	.1171	.1402	.1523	
.500		.1116		
.700		.0498		
.900	.0388	.0413	.0607	

MACH ( 4 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .56240-01 Q(PSI) = .98142 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	.5794	.8482	.7836	1.0391
.300	.1369	.1351	.1387	
.500		.1278		
.700		.0600		
.900	.0648	.0570	.0533	

MACH ( 4 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .56240-01 Q(PSI) = .98142 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	.6760	.5710	.5605	.7426
.300	.1145	.1151	.1139	
.500		.1091		
.700		.0581		
.900	.0575	.0539	.0533	

UPWT 1059 (IH4) 01 ALONE ORB. VERT. TAIL

(MQ3VCA)

MACH ( 4 ) = 4.600 ALPHA ( 3 ) = 5.000 PINF = .66240-01 Q(P51) = .98142 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	.5881	.5268	.3798	.5163
.300	.0997	.0900	.0839	
.500		.0845		
.700		.0389		
.900	.0347	.0347	.0347	

MACH ( 4 ) = 4.600 ALPHA ( 4 ) = 10.000 PINF = .66240-01 Q(P51) = .98142 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	.4589	.4379	.3678	.4501
.300	.0851	.0946	.0958	
.500		.0904		
.700		.0479		
.900	.0419	.0431	.0467	

MACH ( 4 ) = 4.600 ALPHA ( 5 ) = 20.000 PINF = .66240-01 Q(P51) = .98142 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	.3298	.4421	.1649	.1930
.300	.0713	.0647	.0785	
.500		.0545		
.700		.0372		
.900	.0378	.0354	.0420	

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 / LONE

ORBITER FUSELAGE

(MQ3BCB) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = 1.1978 Q(PS1) = 4.6698 RN/L = 3.0000 CPSTG = 1.7063

## SECTION ( 1 ) ORBITER FUSELAGE

## DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	9.1237	5.4149	2.7217	2.0646			1.7421	1.5171	1.4020		1.2477				
10.000									1.3911						
20.000									1.4020						
24.500									1.4128						
39.000									1.7778						
163.000														4.2977	
174.000															
180.000	9.1237				3.2485			2.8106	2.7655	2.9853	6.1967	6.4412	6.3164		5.6530
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	1.1978	1.2260	1.2794	1.2550	1.2595		1.2394				1.0057		.9623	.9376	
23.000		1.2043													
24.000		1.2456													
31.500		1.2803													
33.100			1.1847												
35.000		1.2803													
40.000		1.2977	1.1543												
45.000			1.1130												
50.000		1.4910													
51.600															
57.000			1.1607												
60.900			1.0975												
65.000			1.0630												
68.000															
69.000			1.0109												
79.300					1.0800										
95.500					1.1268		1.1789								
95.700															
96.300	1.4895														
103.000					1.1392										
105.000															
112.600					1.1529										
117.500															
120.800									2.0818						
127.900															
129.500															

2.7977

3.0507

1.1353

1.1470

.6632



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(MQ3BCB)

DEPENDENT VARIABLE PL

DEPENDENT VARIABLE PL

[illegible]

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TABULATED SOURCE DATA - 1H4

PAGE 650

UPWT 1059 (1H4) 01 ALONE

ORBITER FUSELAGE

(MQ38CB)

MACH ( 1 ) = 2.360      ALPHA ( 3 ) = 10.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

[illegible]



DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 651

UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCB)

MACH (1) = 2.360 ALPHA (4) = 20.000 PINF = 1.1978 Q(PST) = 4.6698 RN/L = 3.0000 CPSTG = 1.7063

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	8.6048	8.1696	5.5515	4.4626		3.9045	3.4469	3.2125		2.8586					
10.000								3.1821							
20.000								3.1169							
24.500								2.9346							
39.000								1.8077							
163.000														2.0372	
174.000															
180.000	8.6048				1.4745			1.4607	1.5031	1.5286	1.9630	2.8150	3.2884		3.0712
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	2.6263	2.5112	2.5920	2.5620	2.5620		2.7008				2.3393		2.3177	2.3105	
23.000		2.4504													
24.000	2.5828														
31.500	2.4895														
33.100		2.4200													
35.000	2.3983														
40.000	2.0922	2.2984													
45.000		2.2572													
50.000	1.5668														
51.600															
57.000		.8326													
60.900		.9170													
65.000		.9633													
68.000															
69.000		.9703													
79.300						.4046									
95.500						.8084									
95.700		.9315					2683								
96.300	1.3501														
103.000						.8561									
105.000															
112.600						.7275									
117.500															
120.800															
127.900							1.3660								
129.500															
130.000									1.4957						
135.000		.3963				.4730			1.5932	1.3181	.6780	.6646			
139.600										1.1304					
144.000															
155.000	1.3751											.5574			
180.000	.8076	.4898				.7824									

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DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 652

UPWT 1059 (IH4) 01 ALINE

ORBITER FUSELAGE

(MQ3BCB)

MACH ( 1 ) = 2.360 ALPHA ( 4 ) = 20.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE: PL

X/LB 1.0250 1.0500

PHI

.000 2.3650 2.3506

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000 PINF = .6350 Q(PS1) = 4.0417 RN/L = 3.0200 CPSTG = 1.7529

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE: PL

X/LB .0000 .0050 .0200 .0400 .0500 .0600 .0800 .1000 .1250 .1500 .1600 .1650 .1700 .1750 .1800

PHI

.000	7.7408	4.3103	1.9891	1.4106		1.1409	9690	.8785		.7578				
10.000								.8768						
20.000								.8852						
24.500								.8986						
39.000								1.2256						
163.000													3.3722	
174.000														
180.000	7.7408				2.3742			2.0080	1.9739	2.1612	4.8549	5.3648	5.2542	4.8861

X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8000 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI

.000	.7024	.7024	.7008	.6902	.7014		.7246				.5600		.5309	.5103
23.000		.6890												
24.000	.7393													
31.500	.7662													
33.100		.6857												
35.000	.7729													
40.000	.7913	.6723												
45.000		.6589												
50.000	.9422													
51.600														
57.000		.6307											.7255	
60.900		.6286												
65.000		.6081												
68.000														
69.000		.6027											.5447	
79.300					.6027									
95.500					.6327		6245							
95.700		.5713												
96.300	.9051													
103.000					.6402									
105.000														
112.600					.6443									.2846
117.500														
120.800								1.3666				.7023	.6866	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 653

UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCB)

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
127.900						1.6749									
129.500								2.0070							
130.000									1.7154	.9245		.7556			
135.000		.3645			.6027										
139.600									1.7347						
144.000												.9248			
155.000	1.7229														
180.000	1.2937	.5591			.5615										
X/LB	1.0250	1.0500													
PHI															
.000	.5079	.4946													

PHI

127.900

129.500

130.000

135.000

139.600

144.000

155.000

180.000

X/LB

1.0250

1.0500

PHI

.000

.5079

.4946

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = .66350 Q(PSI) = 4.0417 RN/L = 3.0200 CPSTG = 1.7529

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	7.7825	4.9783	2.4490	1.7731		1.4488	1.2402	1.1140		.9463					
10.000								1.1605							
20.000								1.1693							
24.500								1.1671							
39.000								1.2524							
163.000														2.8435	
174.000															
180.000	7.7825				1.9102			1.5734	1.5596	1.7054	3.8619	4.4888	4.2794		4.0024
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	.8692	.8458	.9072	.9011	.8986		.8865				.6980		.6660	.6466	
23.000		.8441													
24.000	.9145														
31.500	.9463														
33.100		.8676													
35.000	.9614														
40.000	.9932	.8810													
45.000		.9178													
50.000	1.0320														
51.600															
57.000		.6278													
60.900		.6250													

PHI

.000

7.7825

4.9783

2.4490

1.7731

1.4488

1.2402

1.1140

.9463

10.000

20.000

24.500

39.000

163.000

174.000

180.000

X/LB

.2000

.3000

.4000

.5000

.6000

.7800

.8000

.8050

.8290

.8620

.9500

.9630

.9750

1.0000

1.0145

PHI

.000

.8692

.8458

.9072

.9011

.8986

.8865

.6980

.6660

.6466

23.000

24.000

31.500

33.100

35.000

40.000

45.000

50.000

51.600

57.000

60.900

1.0320

4.4888

4.2794

2.8435

.5424

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 654

UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCB)

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
65.000		.6069													
68.000													.4257		
69.000		.6056													
79.300					.5319										
95.500					.5264		.5437								
95.700		.5687													
96.300	1.0408														
103.000					.5174										
105.000															.2549
112.600					.4917										
117.500												.5951		.5764	
120.800									1.2523						
127.900						1.1695									
129.500								1.5826							
130.000									1.4759	.8213		.7014			
135.000		.2903			.5174										
139.600									1.3223						
144.000												.8118			
155.000	1.4843														
180.000	1.0303	.4030			.5109										
X/LB	1.0250	1.0500													
PHI															
.000	.6472	.6370													

MACH ( 2 ) = 2.950 ALPHA ( 3 ) = 10.000 PINF = .66350 Q(PSI) = 4.0417 RN/L = 3.0200 CPSTG = 1.7529

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	7.7559	5.6668	3.0299	2.2517		1.8642	1.6015	1.4531		1.2306					
10.000								1.4357							
20.000								1.4379							
24.500								1.4139							
39.000								1.2241							
163.000														2.3512	
174.000															
180.000	7.7559				1.4932			1.2190	1.2797	1.3549	2.8416	3.5582	3.4165		3.2084

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(MQ3BCB)

DEPENDENT VARIABLE PL

[illegible]

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 656

UPWT 1059 (1H4) 01 AL ONE

### ORBITER FUSELAGE

(MQ3BCB)

MACH ( 2 ) = 2.950    ALPHA ( 4 ) = 20.000    PINF = .66350    Q(PSI) = 4.0417    RN/L = 3.9200    CPSTG = 1.7529

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

[illegible]

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 657

UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ38CB)

MACH ( 2 ) = 2.950 ALPHA ( 4 ) = 20.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB 1.0250 1.0500

PHI

.000 1.5060 1.4874

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -10.000 PINF = .32910 Q(PS1) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB .0000 .0050 .0200 .0400 .0500 .0600 .0800 .1000 .1250 .1500 .1600 .1650 .1700 .1750 .1800

PHI

.000	5.6579	2.1557	.8066	.5098		.3841	.3149	.2711		.2338				
10.000								.2565						
20.000								.2468						
24.500								.2386						
39.000								.6007						

3.3949

163.000														
174.000														
180.000	5.6579				2.4775			2.1444	2.1168	2.3296	5.2067	5.6372	5.7335	5.3771

X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8000 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI

.000	.2192	.2435	.2546	.2423	.2411		.2174			.1314		.1175	.1169	
23.000		.1153												
24.000	.1737													
31.500	.1721													
33.100		.1104												
35.000	.1461													
40.000	.1169	.0958												
45.000		.0909												
50.000	.4513													
51.600														
57.000		.4290										.6200		
60.900		.3629												
65.000		.3206												
68.000													.4809	
69.000		.2974												
79.300					.4570									
95.500					.4802		.4147							
95.700		.2749												
96.300	.5627													
103.000					.4474									
105.000														.1248
112.600					.3288									
117.500											.4202		.4556	
120.800								.6634						

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OF POOR QUALITY

DATE 20 APR 75

TABULATED SOURCE DATA - IH4

PAGE 658

UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ38CB)

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -10.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
------	-------	-------	-------	-------	-------	-------	------	-------	-------	-------	-------	-------	-------	--------	--------

PHI

127.900

1.5233

129.500

1.5343

130.000

.9738

.5213

.4215

135.000

.2708

.3785

139.600

1.2537

.7748

144.000

155.000

1.6741

180.000

1.5349

.4650

.4638

X/LB 1.0250 1.0500

PHI

.000

.1072

.1066

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = -5.000 PINF = .32910 Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
------	-------	-------	-------	-------	-------	-------	------	-------	-------	-------	-------	-------	-------	-------	-------

PHI

.000

5.8201

2.5687

1.0344

.6617

.5011

.4055

.3502

.2883

10.000

.3388

20.000

.3388

24.500

.3437

39.000

.6401

163.000

2.9058

174.000

5.8201

2.0303

1.7018

1.6696

1.8497

4.3340

4.8789

4.9024

4.6513

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
------	-------	-------	-------	-------	-------	-------	------	-------	-------	-------	-------	-------	-------	--------	--------

PHI

.000

.2671

.2606

.2740

.2699

.2640

.2711

.1819

.1656

.1637

23.000

.2345

24.000

.2622

31.500

.2655

33.100

.2036

35.000

.2443

40.000

.2215

.1775

45.000

.1564

50.000

.4528

51.600

.4722

57.000

.3511

60.900

.3504



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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCB)

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = -5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
65.000		.2990													
68.000													.3856		
69.000		.2747													
79.300					.3626										
95.500					.3667		.3700								
95.700		.2950													
96.300	.5270														
103.000					.3430										
105.000															.1157
112.600					.3383										
117.500												.3518		.3788	
120.800									.7798						
127.900						1.5803									
129.500								1.5049							
130.000									1.1506	.5514		.3694			
135.000		.2902			.3403										
139.600									1.2463						
144.000												.5162			
155.000	1.4257														
180.000	1.1954	.3300			.3323										

X/LB 1.0250 1.0500

PHI

.000 .1546 .1492

MACH ( 3 ) = 3.700 ALPHA ( 3 ) = .000 PINF = .32910 Q(P51) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	5.8491	3.0603	1.3194	.8714		.6657	.5391	.4691		.3779					
10.000								.4577							
20.000								.4658							
24.500								.4772							
39.000								.6759							
163.000															2.3999
174.000															
180.000	5.8491				1.5905			1.2979	1.2749	1.4244	3.4144	3.9867	3.9698		3.8150

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(MQ3BCB)

DEPENDENT VARIABLE PL

[illegible]

TABULATED SOURCE DATA - IH4

UPWT 1059 (1H4) 01 ALONE ORBITER FUSELAGE (MQ3BCB)

MACH ( 3 ) = 3.700 ALPHA ( 4 ) = 5.000 PINF = .32910 Q(P51) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

[illegible]

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TABULATED SOURCE DATA - IH4

PAGE 662

UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCB)

MACH ( 3 ) = 3.700 ALPHA ( 4 ) = 5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB 1.0250 1.0500

PHI

.000 .3041 .2956

MACH ( 3 ) = 3.700 ALPHA ( 5 ) = 10.000 PINF = .02910

Q(PSI) = 3.1538

RN/L = 3.0000

CPSTG = 1.7839

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB .0000 .0050 .0200 .0400 .0500 .0600 .0800 .1000 .1250 .1500 .1600 .1650 .1700 .1750 .1800

PHI

.000	5.8798	4.1765	2.1062	1.4969		1.2034	1.0059	.8924		.7325				
10.000								.8793						
20.000								.8842						
24.500								.8712						
39.000								.7341						

163.000

174.000

180.000

X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8000 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI

.000	.6411	.5791	.6077	.6159	.6165		.6331		.4644		.4391	.4199		
23.000		.5775												
24.000	.6509													
31.500	.6591													
33.100		.5955												
75.000	.6591													
40.000	.6526	.6003												
45.000		.6264												
50.000	.5824													
51.600														
57.000		.2948												
60.900		.2934												
65.000		.2941												
68.000														
69.000		.2646												
79.300					.2126									
95.500					.2045		1875							
95.700		.2826												
96.300	.5516													
103.000					.2024									
105.000														
112.600					.1977									.0727
117.500														
120.800								.6808		.2337		.2133		



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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALOVE

ORBITER FUSELAGE

(MQ3BCB)

MACH ( 3 ) = 3.700 ALPHA ( 6 ) = 20.000

SECTION ( 1 ) ORBITER FUSELAGE		DEPENDENT VARIABLE PL													
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.3000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
65.000		.2585													
68.000													.0846		
69.000		.2585													
79.300					.0927										
95.500					.2283		.1772								
95.700		.2585													
96.300	.4465														
103.000					.2330										
105.000															.0712
112.600					.1961										
117.500												.1430		.1377	
120.800									.5693						
127.900						.1910									
129.500								.5069							
130.000									.3513	.1705		.1316			
135.000		.0940			.1021										
139.600									.2180						
144.000												.1215			
155.000	.4000														
180.000	.2956	.1381			.1311										

X/LB 1.0250 1.0500

PHI

.000 .9040 .8651

MACH ( 4 ) = 4.600 ALPHA ( 1 ) = -10.000 PINF = .16595 Q(PST) = 2.4580 RN/L = 3.0100 CPSTG = 1.8033

SECTION ( 1 ) ORBITER FUSELAGE		DEPENDENT VARIABLE PL													
X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	4.4065	1.6314	.5742	.3421		.2461	.2453	.1702		.1402					
10.000								.1535							
20.000								.1535							
24.500								.1535							
39.000								.4006							
163.000														2.6436	
174.000															
180.000	4.4065				1.8212			1.5543	1.5341	1.7149	4.0587	4.5504	4.7156		4.4997

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UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCB)

MACH ( 4 ) = 4.600 ALPHA ( 1 ) = -10.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	.1285	.1352	.1127	.1163	.1139		.282				.0720		.0647	.0623	
23.000		.0818													
24.000	.1102														
31.500	.1185														
33.100		.0901													
35.000	.0985														
40.000	.0885	.0784													
45.000		.0751													
50.000	.2837														
51.600													.3154		
57.000		.2286													
60.900		.2286													
65.000		.2245													
68.000													.2666		
69.000		.1730													
79.300					.2171										
95.500					.2245		.2293								
95.700		.1669													
96.300	.3514														
103.000					.2415										
105.000															.0604
112.600					.2028										
117.500												.2130		.2232	
120.800									.4423						
127.900						.9365									
129.500								1.0446							
130.000									.6704	.2847		.2428			
135.000		.1391			.2333										
139.600									.8614						
144.000												.4287			
155.000	1.2714														
180.000	.8662	.3055			.3023										
X/LB	1.0250	1.0500													
PHI															
.000	.0605	.0611													

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OF POOR QUALITY

DATE 20 APR 76

TABULATED SOURCE DATA - 1H4

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UPWT 1059 (1H4) 01 ALONE

### ORBITER FUSELAGE

(MQ3BCB)

MACH ( 4 ) = 4.600    ALPHA ( 2 ) = -5.000    PINF = .16395

$$Q(\text{PSI}) = 2.4580$$

RN/L = 3.0100

CPSTG = 1.8033

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

[illegible]



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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCB)

MACH ( 4 ) = 4.600 ALPHA ( 2 ) = -5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB 1.0250 1.0500

PHI

.000 .0691 .0660

MACH ( 4 ) = 4.600 ALPHA ( 3 ) = .000 PINF = .16595 Q(PHI) = 2.4580 RN/L = 3.0100 CPSTG = 1.8033

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB .0000 .0050 .0200 .0400 .0500 .0600 .0800 .1000 .1250 .1500 .1600 .1650 .1700 .1750 .1800

PHI

.000 4.5772 2.3499 .9704 .6063 .4477 3473 .2951 .2267

10.000

.2854

20.000

.2903

24.500

.3033

39.000

.4435

163.000

174.000

180.000

4.5772

1.1173

.8804

.8749

.9849

2.4238

2.9597

3.1131

1.7813

3.0897

X/LB .2000 .3000 .4000 .5000 .6000 .7800 8000 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI

.000 .1892 .1728 .1808 .1785 .1611 1840 .1195 .1068 .1104

23.000

.1663

24.000

.1973

31.500

.2169

33.100

.1712

35.000

.2136

40.000

.2250

.1631

45.000

.1631

50.000

.2951

51.600

.1518

57.000

.1970

60.900

.1970

65.000

.1963

68.000

.1383

69.000

.1680

79.300

.1525

95.500

.1511

1329

95.700

.1504

96.300

.3616

103.000

.1430

105.000

.0506

112.600

.1369

117.500

.1815

.1970

120.800

.5240

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TABULATED SOURCE DATA - IH4

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UPWT 105S (IH4) 01 AL(NE

ORBITER FUSELAGE

(MQ3BCB)

MACH ( 4) = 4.600 ALPHA ( 3) = .000

SECTION ( 1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
127.900						.4477									
129.500								.5110							
130.000									.5882	.3416		.1747			
135.000		.1181			.1228										
139.600								.5621							
144.000												.2091			
155.000	.8498														
180.000	.7120	.1446			.1405										
X/LB	1.0250	1.0500													

PHI

.000 .1002 .0941

MACH ( 4) = 4.600 ALPHA ( 4) = 5.000 PINF = .16595 Q(PSI) = 2.4580 RN/L = 3.0100 CPSTG = 1.8033

SECTION ( 1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	4.5840	2.7988	1.2542	.8214		.6200	.4957	.4240		.3294					
10.000								.4158							
20.000								.4240							
24.500								.4337							
39.000								.4647							
163.000														1.2909	
174.000															
180.000	4.5840				.8396			.6323	.6527	.7147	1.5497	1.9582	2.2781		2.2911
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	.2739	.2413	.2425	.2402	.2354		.2558				.1742		.1591	.1572	
23.000		.2413													
24.000	.2854														
31.500	.3017														
33.100		.2544													
35.000	.3049														
40.000	.3196	.2625													
45.000		.2788													
50.000	.3310														
51.600															
57.000		.1765													
60.900		.1772													

.0764

DATE 20 APR 76

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UPWT 1059 (IH4) 01 ALCNE

ORBITER FUSELAGE

(MQ3BCB)

MACH (4) = 4.600 ALPHA (4) = 5.000

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.9000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
65.000		.1765													
68.000													.1320		
69.000		.1758													
79.300					.1140										
95.500					.1119		.1056								
95.700		.1452													
96.300	.3551														
103.000					.1063										
105.000															.0361
112.600					.0959										
117.500												.1591		.1619	
120.800									.3766						
127.900						.2306									
129.500								.3673							
130.000									.4147	.2380		.1383			
135.000		.0827			.0876										
139.600									.3664						
144.000												.1522			
155.000	.6188														
180.000	.5202	.1298			.0979										

X/LB 1.0250 1.0500

PHI

.000 .1476 .1379

MACH (4) = 4.600 ALPHA (5) = 10.000 PINF = .13595 Q(PSI) = 2.4580 RN/L = 3.0100 CPSTG = 1.8033

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	.1314	.3746	.1321	.1267		.0463	.4219	.4055		.4125					
10.000								2.1321							
20.000								2.5998							
24.500								1.1849							
39.000								.9123							
163.000														.3996	
174.000											.8732				
180.000	.1314				.7599			.6772	.5353	.4179	.3514	.2946		1.2987	

UPWT 1059 (1H4) 01 ALOVE

## ORBITER FUSELAGE

(MQ3BCB)

MACH ( 4 ) = 4.600      ALPHA ( 5 ) = 10.000

[illegible]

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DEPENDENT VARIABLE PL

[illegible]

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UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCB)

MACH ( 4 ) = 4.600 ALPHA ( 6 ) = 20.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB 1.0250 1.0500

PHI  
.000 .5943 .5635

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONIC

ORB. UPPER WING

(MQ3UCB) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = 1.1978 Q(PSI) = 4.6698 RN/L = 3.0000 CPSTG = 1.7063

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE P/L

2Y/BW .4000 .6000 .8000

X/CW

.050	2.0202		
.200	1.0160	1.0610	1.5463
.600	.5513	.4095	
.800		.4254	
.900	2.1588	.4831	
.950		.5584	

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = 1.1978 Q(PSI) = 4.6698 RN/L = 3.0000 CPSTG = 1.7063

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE P/L

2Y/BW .4000 .6000 .8000

X/CW

.050	1.6613		
.200	.6852	.7561	1.1801
.600	.3063	.2732	
.800		.3069	
.900	2.1799	.3557	
.950		.4330	

MACH ( 1 ) = 2.360 ALPHA ( 3 ) = 10.000 PINF = 1.1978 Q(PSI) = 4.6698 RN/L = 3.0000 CPSTG = 1.7063

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE P/L

2Y/BW .4000 .6000 .8000

X/CW

.050	.9849		
.200	.5103	.4957	.8526
.600	.2123	.2461	
.800		.2374	
.900	2.2154	.2578	
.950		.3528	

UPWT 1059 (IH4) 01 ALONE

ORB. UPPER WING

(MQ3UCB)

MACH ( 1 ) = 2.360 ALPHA ( 4 ) = 20.000 PINF = 1.1978 Q(PSI) = 4.6698 RN/L = 3.0000 CPSTG = 1.7063

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.5202		
.200	.3179	.1796	.3956
.600	.1537	.1784	
.800		.1707	
.900	2.2716	.2620	
.950		.2850	

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000 PINF = .56350 Q(PSI) = 4.0417 RN/L = 3.0200 CPSTG = 1.7529

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	1.4472		
.200	.5657	.7470	1.1850
.600	.2464	.2259	
.800		.2259	
.900	1.0647	.3572	
.950		.3325	

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = .56350 Q(PSI) = 4.0417 RN/L = 3.0200 CPSTG = 1.7529

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	1.1305		
.200	.4130	.5517	.8697
.600	.1664	.1564	
.800		.1670	
.900	1.0777	.2378	
.950		.2260	



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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORB. UPPER WING

(MQ3UCB)

MACH ( 2 ) = 2.950 ALPHA ( 3 ) = 10.000 PINF = .36350

Q(PSI) = 4.0417

RN/L = 3.0200

CPSTG = 1.7529

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.5737		
.200	.2420	.3166	.6448
.600	.1210	.1351	
.800		.1286	
.900	1.0860	.1779	
.950		.1985	

MACH ( 2 ) = 2.950 ALPHA ( 4 ) = 20.000 PINF = .36350

Q(PSI) = 4.0417

RN/L = 3.0200

CPSTG = 1.7529

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.2687		
.200	.1405	.1393	.3702
.600	.0903	.0956	
.800		.1086	
.900	1.1029	.1653	
.950		.1807	

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -10.000 PINF = .32910

Q(PSI) = 3.1538

RN/L = 3.0000

CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	1.0862		
.200	.6186	.7846	1.2889
.600	.2918	.2811	
.800		.2663	
.900	.5403	.3647	
.950		.3428	

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORB. UPPER WING

(MQ3UCB)

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = -5.000 PINF = .02910

Q(PST) = 3.1538

RN/L = 3.0000

CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	1.0823		
.200	.4663	.6125	1.0500
.600	.1714	.1855	
.800		.1860	
.900		.5464	.2890
.950		.2206	

MACH ( 3 ) = 3.700 ALPHA ( 3 ) = .000 PINF = .02910

Q(PST) = 3.1538

RN/L = 3.0000

CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.9274		
.200	.3470	.4855	.8208
.600	.1256	.1268	
.800		.1274	
.900		.5507	.2137
.950		.1691	

MACH ( 3 ) = 3.700 ALPHA ( 4 ) = 5.000 PINF = .02910

Q(PST) = 3.1538

RN/L = 3.0000

CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.6729		
.200	.1892	.3220	.5907
.600	.0795	.0771	
.800		.0795	
.900		.5533	.1512
.950		.1305	

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UPWT 1059 (IH4) 01 AL(NE

ORB. UPPER WING

(MQ3UCB)

MACH ( 3) = 3.700 ALPHA ( 5) = 10.000 PINF = .32910

Q(PS1) = 3.1538

RN/L = 3.0000

CPSTG = 1.7839

SECTION ( 1) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.3453		
.200	.1048	.2242	.4537
.600	.0606	.0718	
.800		.0730	
.900		.5655	.1330
.950		.1465	

MACH ( 3) = 3.700 ALPHA ( 6) = 20.000 PINF = .32910

Q(PS1) = 3.1538

RN/L = 3.0000

CPSTG = 1.7839

SECTION ( 1) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.1315		
.200	.0812	.1201	.2785
.600	.0598	.0702	
.800		.0696	
.900		.5808	.1306
.950		.1387	

MACH ( 4) = 4.600 ALPHA ( 1) = -10.000 PINF = .15595

Q(PS1) = 2.4580

RN/L = 3.0100

CPSTG = 1.8033

SECTION ( 1) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.7367		
.200	.4002	.5367	1.0269
.600	.1509	.1733	
.800		.1739	
.900		.3447	.2917
.950		.1851	

UPWT 1059 (IH4) 01 ALONE

ORB. UPPER WING

(MQ3UCB)

MACH ( 4 ) = 4.600 ALPHA ( 2 ) = -5.000 PINF = .13595

Q(PSI) = 2.4580

RN/L = 3.0100

CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.6918		
.200	.2789	.4352	.8243
.600	.0770	.1019	
.800		.0829	
.900		.3281	.1930
.950		.1220	

MACH ( 4 ) = 4.600 ALPHA ( 3 ) = .000 PINF = .13595

Q(PSI) = 2.4580

RN/L = 3.0100

CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.5796		
.200	.1852	.2887	.5544
.600	.0664	.0929	
.800		.0929	
.900		.3322	.1729
.950		.1311	

MACH ( 4 ) = 4.600 ALPHA ( 4 ) = 5.000 PINF = .13595

Q(PSI) = 2.4580

RN/L = 3.0100

CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.4229		
.200	.1092	.2053	.4089
.600	.0454	.0549	
.800		.0566	
.900		.3346	.1221
.950		.1068	

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UPWT 1059 (IH4) 01 ALOHE

ORB. UPPER WING

(MQ3UCB)

MACH ( 4 ) = 4.600 ALPHA ( 5 ) = 10.000 PINF = .16595

Q(PSI) = 2.4580

RN/L = 3.0100

CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.3510		
.200	.3480	.3466	.3451
.600	.3480	.3480	
.800		.3466	
.900		.3495	.3451
.950		.3480	

MACH ( 4 ) = 4.600 ALPHA ( 6 ) = 20.000 PINF = .16595

Q(PSI) = 2.4580

RN/L = 3.0100

CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.0905		
.200	.0580	.0945	.1671
.600	.0528	.0539	
.800		.0597	
.900		.3533	.1125
.950		.1056	

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UPWT 1059 (IH4) 01 ALONE

ORB. LOWER WING

(MQ3LCB) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = 1.1978 Q(PSI) = 4.6698 RN/L = 3.0000 CPSTG = 1.7063

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW .2500 .3011 .3480 .4000 .5000 .6000 .7500 .8500 .9500 .9980

X/CW

.000						3.6792		4.0103		.8223
.001		1.2282	1.2521		2.8205	1.4867	3.7492	1.4956		
.002						1.2021		1.4298		
.003						4.6128		4.1963		
.004						1.9042		1.8712		
.005						1.3086		1.4122		
.025				1.4606	1.3520		1.5214			
.045				1.4802						
.100						1.2489		1.4584	1.4997	
.153	1.1760									
.177					1.1631					
.200				1.1364						
.299	1.2119									
.302				1.2244			1.4372			
.428						1.3464				
.444	1.2499									
.487					1.3793					
.559				1.3787						
.600						1.3049				
.700						1.1302				
.736	1.3191									
.800						.9696				
.850						.8658				
.900				.8055		.7656	.7765	.7875		

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = 1.1378 Q(PSI) = 4.6698 RN/L = 3.0000 CPSTG = 1.7063

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW .2500 .3011 .3480 .4000 .5000 .6000 .7500 .8500 .9500 .9980

X/CW

.000						4.3363		4.1400		.1496
.001		1.4399	1.4290		3.5695	2.2263	4.2458	2.1658		
.002						1.8862		2.0977		
.003						4.4609		3.8652		
.004						2.7371		2.6032		
.005						2.0248		2.0870		

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UPWT 1059 (IH4) 31 ALONE

ORB. LOWER WING

(MQ3LCB)

MACH (1) = 2.360 ALPHA (2) = 5.000

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6010	.7500	.8500	.9500	.9980
X/CW										
.025				2.0703	2.1505		2.2176			
.045				2.0920						
.100						1.8613		2.1548	2.1353	
.153	1.4464									
.177					1.7550					
.200				1.5790						
.299	1.4258									
.302				1.6273			2.0637			
.428						1.9258				
.444	1.4871									
.487					1.8543					
.559				1.7618						
.600						1.7637				
.700						1.5276				
.736	1.6040									
.800						1.3020				
.850						1.1571				
.900				1.0422		1.0177	1.1092		1.0839	

MACH (1) = 2.360 ALPHA (3) = 10.000 PINF = 1.1978 Q(PSI) = 4.6698 RN/L = 3.0000 CPSTG = 1.7063

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6010	.7500	.8500	.9500	.9980
X/CW										
.000						4.8315		4.1291		.2762
.001		1.4072	1.1303		3.9808	3.0618	4.6257	3.1276		
.002						2.5828		2.9909		
.003						3.9618		3.1477		
.004						3.6222		3.4835		
.005						2.8439		3.0283		
.025				2.3276	2.9078		3.0124			
.045				2.4149						
.100						2.6019		3.1019	2.7922	
.153	1.7300									
.177					2.3689					
.200				2.0045						
.299	1.7009									
.302				2.0403			2.7973			
.428						2.4756				
.444	1.7628									
.487					2.3967					
.559				2.2088						
.600						2.2935				

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UPWT 1059 (IH4) 01 ALONE

ORB. LOWER WING

(MQ3LCB)

MACH ( 1 ) = 2.360 ALPHA ( 3 ) = 10.000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.700						1.9830				
.736	1.9472									
.800						1.6927				
.850						1.5132				
.900				1.3408		1.3306	1.4844		1.4061	

MACH ( 1 ) = 2.360 ALPHA ( 4 ) = 20.000 PINF = 1.1978 Q(PSI) = 4.665 RN/L = 3.0000 CPSTG = 1.7063

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						5.0446		3.5256		.2660
.001		1.5985	1.1825		3.9919	4.4210	5.0326	4.9625		
.002						3.9311		4.6526		
.003						2.9905		2.0288		
.004						4.9763		5.1348		
.005						4.1526		4.7457		
.025				2.7413	3.7552		4.7149			
.045				2.9867						
.100						4.0233		4.7019	3.4122	
.153	2.4243									
.177					3.4722					
.200				2.9064						
.299	2.5052									
.302				3.0091			4.2219			
.428						3.7151				
.444	2.6022									
.487					3.6567					
.559				3.3366						
.600						3.557				
.700						3.0808				
.736	2.9479									
.800						2.6635				
.850						2.4212				
.900				2.1735		2.1262	2.3686		2.1894	



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UPWT 1059 (1H4) 01 ALONE				ORB. LOWER WING		(MQ3LCB)	
MACH (2) =	2.950	ALPHA (1) =	.000	PINF =	.66350	Q(PSI) =	4.0417
						RN/L =	3.0200
						CPSTG =	1.7529

SECTION ( 1 ) ORB. LOWER WING		DEPENDENT VARIABLE PL								
2Y/BW	.2500	.3011	.3480	.4000	.5000	.6010	.7500	.8500	.9500	.9980
X/CW										
.000						2.9812		3.3426		.5599
.001		.7125	.7175		2.3742	1.1413	3.0115	1.1076		
.002						.8419		.9981		
.003						3.8812		3.5764		
.004						1.4514		1.4918		
.005						.9419		1.0015		
.025				.8952	.9237		1.1182			
.045				.9003						
.100						.8337		1.0538	1.1311	
.153	.6773				.6647					
.177										
.200				.6197						
.299	.6670									
.302				.6670			.9348			
.428						.7813				
.444	.6961				.7725					
.487										
.559				.7636						
.600						.7215				
.700						.6132				
.736	.7535									
.800						.5110				
.850						.4516				
.900				.4280		.4011	.4153		.4757	

MACH (2) = 2.950    ALPHA (2) = 5.000    PINF = .66350    Q(PSI) = 4.0417    RN/L = 3.0200    CPSTG = 1.7529

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UPWT 1059 (IH4) (1 ALONE

ORB. LOWER WING

(MQ3LCB)

MACH ( 2) = 2.950 ALPHA ( 2) = 5.000

SECTION ( 1) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.302				1.0317			1.4193			
.428						1.2615				
.444	.9097									
.487					1.2031					
.559				1.1276						
.600						1.1753				
.700						.9506				
.736	1.0119									
.800						.7898				
.850						.6901				
.900				.5953		.5911	.6720		.7076	

MACH ( 2) = 2.950 ALPHA ( 3) = 10.000 PINF = .66350

Q(P51) = 4.0417

RN/L = 3.0200

CPSTG = 1.7529

SECTION ( 1) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000						4.0045		3.4976		.2031
.001		.8807	.7159		3.3095	2.2995	3.8748	2.3070		
.002						1.8829		2.1606		
.003						3.3901		2.7603		
.004						2.8234		2.7074		
.005						2.0770		2.1992		
.025				1.6080	2.1595		2.2450			
.045				1.6691						
.100						1.8205		2.2406	2.0399	
.153	1.1019									
.177					1.5857					
.200				1.3139						
.299	1.1016									
.302				1.3417			1.9688			
.428						1.7282				
.444	1.1397									
.487					1.6317					
.559				1.4365						
.600						1.5789				
.700						1.3414				
.736	1.2515									
.800						1.1187				
.850						.9798				
.900				.8354		.8415	.9876		.9849	

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UPWT 1059 (IH4) (1 ALONE) ORB. LOWER WING (MQ3LCB)  
 MACH (2) = 2.950 ALPHA (4) = 20.000 PINF = .66350 Q(PSI) = 4.0417 RN/L = 3.0200 CPSTG = 1.7529

SECTION (1) ORB. LOWER WING DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						4.6138		3.3713		.2126
.001		1.0947	.8274		3.5683	3.4968	4.4824	4.0288		
.002						2.9467		3.7042		
.003						2.8934		1.9018		
.004						4.1251		4.2723		
.005						3.2239		3.8030		
.025				2.0608	2.9792		3.7481			
.045				2.2449						
.100						3.1420		3.7351	2.7734	
.153	1.6990									
.177					2.5930					
.200				2.1379						
.299	1.8008									
.302				2.2015			3.2723			
.428						2.8575				
.444	1.8814									
.487					2.7162					
.559				2.3541						
.600						2.6731				
.700						2.2847				
.736	2.0658									
.800						1.9363				
.850						1.7340				
.900				1.4970		1.5150	1.7412		1.6411	

MACH (3) = 3.700 ALPHA (1) = -10.000 PINF = .32910 Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION (1) ORB. LOWER WING DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						1.5601		2.1523		.1575
.001		.0666	.0649		.9562	.3425	1.6556	.3252		
.002						.2152		.2767		
.003						2.7343		3.1098		
.004						.5901		.4367		
.005						.2646		.2847		
.025				.0779	.2127		.3020			
.045				.0731						
.100						.2349		.2679	.3052	
.153	.0958									
.177					.0908					
.200				.0908						
.299	.0896									

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UPWT 1059 (IH4) C1 ALONE

ORB. LOWER WING

(MQ3LCB)

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -10.000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.302				.0908			.2221			
.428						.0823				
.444	.0908									
.487					.0822					
.559				.0822						
.600						.0841				
.700						.0757				
.736	.0828									
.800						.0600				
.850						.0654				
.900				.0733		.0715	.0806		.1160	

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = -5.000 PINF = .32910 Q(P51) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						1.8383		2.4510		.3078
.001		.1254	.1156		1.2262	.4651	1.9509	.5099		
.002						.3073		.3990		
.003						2.9050		3.1012		
.004						.7437		.6678		
.005						.3730		.4283		
.025				.1287	.3078		.4463			
.045				.1287						
.100						.3163		.4186	.4805	
.153	.1710									
.177					.1303					
.200				.1308						
.299	.1614									
.302				.1297			.3397			
.428						.2124				
.444	.1596									
.487					.1573					
.559				.1584						
.600						.1631				
.700						.1176				
.736	.2165									
.800						.0859				
.850						.0813				
.900				.1019		.0916	.0988		.1732	

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UPWT 1059 (IH4) C1 ALONE ORB. LOWER WING (MQ3LCB)

MACH (3) = 3.700 ALPHA (3) = .000 PINF = .32910 Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING		DEPENDENT VARIABLE PL								
2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						2.1143		2.5773		.3323
.001		.3323	.3388		1.6754	.7035	2.2632	.7802		
.002						.4951		.6405		
.003						2.8162		2.8162		
.004						1.0122		1.0081		
.005						.5717		.6644		
.025				.4577	.5684		.6613			
.045				.4593						
.100						.4903		.6466	.7052	
.153	.3127									
.177					.3444					
.200				.2925						
.299	.3164									
.302				.3104			.5450			
.428						.4125				
.444	.3253									
.487					.3349					
.559				.3325						
.600						.3695				
.700						.2903				
.736	.3313									
.800						.2310				
.850						.1925				
.900				.1745		.1673	.1919		.2421	

MACH ( 3 ) = 3.700    ALPHA ( 4 ) = 5.000    PINF = .32910    Q(PSI) = 3.1538    RN/L = 3.0000    CPSTG = 1.7839

[illegible]

UPWT 1059 (1H4) 01 ALONE

ORB. LOWER WING

(MQ3LCB)

MACH ( 3 ) = 3.700 ALPHA ( 4 ) = 5.000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.302				.5230			.8401			
.428						.6913				
.444	.4354									
.487					.6561					
.559				.5751						
.600						.6323				
.700						.5142				
.736	.4780									
.800						.4137				
.850						.3531				
.900				.2859		.3013	.3580		.3995	

MACH ( 3 ) = 3.700 ALPHA ( 5 ) = 10.000 PINF = .32910 Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						3.0842		2.7753		.1370
.001		.5074	.4176		2.5595	1.6567	3.0313	1.6007		
.002						1.2993		1.4111		
.003						2.7303		2.1796		
.004						2.0072		2.0186		
.005						1.4412		1.4542		
.025				1.0253	1.5381		1.6222			
.045				1.0727						
.100						1.1902		1.5403	1.3377	
.153	.6493									
.177					.9624					
.200				.7678						
.299	.6375									
.302				.7789			1.2607			
.428						1.0723				
.444	.6510									
.487					.9852					
.559				.8327						
.600						.9643				
.700						.7873				
.736	.7059									
.800						.6391				
.850						.5512				
.900				.4440		.4703	.5735		.5869	



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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 0 ALONE

ORB. LOWER WING

(MQ3LCB)

MACH (4) = 4.600 ALPHA (1) = -10.000

SECTION (1) ORB. LOWER WING

DEPENDENT VAR ABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.302				.0510			.1353			
.428						.0902				
.444	.0540									
.487					.0593					
.559				.0575						
.600						.0730				
.700						.067				
.736	.0581									
.800						.0635				
.850						.0587				
.900				.0544		.0550	.0641		.0861	

MACH (4) = 4.600 ALPHA (2) = -5.000 PINF = .16595 Q(PSI) = 2.4580 RN/L = 3.0100 CPSTG = 1.8033

SECTION (1) ORB. LOWER WING

DEPENDENT VAR ABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000						1.4590		2.1519		.1970
.001		.0830	.0700		.9393	.3272	1.6877	.4126		
.002						.2161		.3046		
.003						2.3704		2.7629		
.004						.5620		.5665		
.005						.2637		.3340		
.025				.0895	.2393		.3484			
.045				.0847						
.100						.2256		.3256	.3663	
.153	.1009									
.177					.0869					
.200				.0704						
.299	.0857									
.302				.0757			.2142			
.428						.1336				
.444	.0810									
.487					.0851					
.559				.0798						
.600						.1015				
.700						.0757				
.736	.0786									
.800						.0612				
.850						.0545				
.900				.0557		.0539	.0648		.0937	



TABULATED SOURCE DATA - IH4

ORB. LOWER WING

(MQ3LCB)

MACH ( 4 ) = 4.600 ALPHA ( 3 ) = .000 PINF : .16595

$$Q(\text{PSI}) = 2.4580$$

RN/L = 3.0100

CPSTG = 1.8033

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3499	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				1.7201		2.1639		.1957
.001	.1843	.1859	1.3055	.5218	1.9164	.6169		
.002				.3441		.4733		
.003				2.2458		2.3772		
.004				.7979		.8300		
.005				.4174		.5064		
.025			.2903	.4256	.5202			
.045			.2886					
.100				.3416		.4925	.4990	
.153	.1712							
.177			.2052					
.200			.1599					
.299	.1645							
.302			.1657		.3651			
.428				.2587				
.444	.1663							
.487			.2169					
.559			.1837					
.600				.2192				
.700				.1563				
.736	.1669							
.800				.1146				
.850				.0953				
.900			.0790	.0845	.1038		.1444	

MACH ( 4 ) = 4.600    ALPHA ( 4 ) = 5.000    PINF = .16595

$$Q(\text{PSI}) = 2.4580$$

RN/L = 3.0100

CPSTG = 1.8033

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				2.1178	2.1929	.1239
.001	.2642	.2544	1.7027	.8038	.8851	
.002				.5740	.7033	
.003				2.2748	2.0529	
.004				1.1279	1.0855	
.005				.6637	.7340	
.025		.5251	.7289		.8104	
.045		.5251				
.100				.5526	.6767	.6539
.153	.2821					
.177			.3977			
.200		.3068				
.299	.2537					

UPWT 1059 (IH4) 01 ALONE

ORB. LOWER WING

(MQ3LCB)

MACH (4) = 4.600 ALPHA (4) = 5.000

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.302				.3098			.5853			
.428						.4555				
.444	.2561									
.487					.4071					
.559				.3416						
.600						.4006				
.700						.3157				
.736	.2679									
.800						.2455				
.850						.2020				
.900				.1379		.1665	.2087		.2342	

MACH (4) = 4.600 ALPHA (5) = 10.000 PINF = .16595 Q(PSI) = 2.4580 RN/L = 3.0100 CPSTG = 1.8033

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						.3525		.3474		.3474
.001		.3474	.3458		.3480	.3495	.3474	.3474		
.002						.3480		.3474		
.003						.3466		.3474		
.004						.3460		.3474		
.005						.3474		.3458		
.025				.3580	.3489		.3474			
.045				.3493						
.100						.3672		.3474	.3474	
.153	.3449									
.177					.3474					
.200				.3481						
.299	.3458									
.302				.3476			.3474			
.428						.3495				
.444	.3545									
.487					.3489					
.559				.3470						
.600						.3480				
.700						.3495				
.736	.3487									
.800						.3465				
.850						.3495				
.900				.3625		.3464	.3474		.3489	

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UPWT 1059 (IH4) 01 ALONE

ORB. LOWER WING

(MQ3LCB)

MACH (4) = 4.600 ALPHA (6) = 20.000 PINF = .16595

Q(PSI) = 2.4580

RN/L = 3.0100

CPSTG = 1.8033

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000						3.4217		1.7406		.1225
.001		.5063	.3969		2.7382	2.303E	2.3294	1.9885		
.002						1.8603		1.7893		
.003						2.288E		.8930		
.004						2.706E		2.2714		
.005						2.0830		1.8437		
.025				1.1901	1.8838		1.9267			
.045				1.2714						
.100						1.717E		1.8539	1.4213	
.153	.8199									
.177					1.3398					
.200				1.0731						
.299	.8627									
.302				1.0986			1.5804			
.428						1.6031				
.444	.9054									
.487					1.3869					
.559				1.1633						
.600						1.383E				
.700						1.1170				
.736	.9843									
.800						.8917				
.850						.759E				
.900				.6377		.642E	.7077		.7753	

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORB. VERT. TAIL

(MQ3VCB) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = 1.1978 Q(PSI) = 4.6698 RN/L = 3.0000 CPSTG = 1.7063

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	4.4626	4.2236	3.5529	4.2697
.300	2.2896	2.2453	2.1435	
.500		2.0178		
.700		.8670		
.900	.7047	.7783	.9098	

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = 1.1978 Q(PSI) = 4.6698 RN/L = 3.0000 CPSTG = 1.7063

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	3.9949	3.8908	3.1586	3.6058
.300	2.0298	2.0005	1.9364	
.500		1.7898		
.700		.7637		
.900	.6244	.6818	.8109	

MACH ( 1 ) = 2.360 ALPHA ( 3 ) = 10.000 PINF = 1.1978 Q(PSI) = 4.6698 RN/L = 3.0000 CPSTG = 1.7063

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	3.7928	3.4140	2.7142	3.1426
.300	1.8765	1.8035	1.7358	
.500		1.6095		
.700		.6949		
.900	.5573	.6165	.7279	

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UPWT 1059 (IH4) C1 ALONE

ORB. VERT. TAIL

(MQ3VCB)

MACH ( 1 ) = 2.360 ALPHA ( 4 ) = 20.000 PINF = 1.1978

Q(PSI) = 4.6698

RN/L = 3.0000

CPSTG = 1.7063

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	4.4540	3.2184	2.1192	2.3940
.300	1.7473	1.5767	1.4552	
.500		1.4803		
.700		.5475		
.900	.3419	.4474	.5990	

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000 PINF = .66350

Q(PSI) = 4.0417

RN/L = 3.0200

CPSTG = 1.7529

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	3.4638	3.2897	2.7794	3.4057
.300	1.6363	1.2281	.9680	
.500		1.3741		
.700		.6320		
.900	.4274	.5400	.5781	

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = .66350

Q(PSI) = 4.0417

RN/L = 3.0200

CPSTG = 1.7529

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	3.1095	2.9866	2.3278	2.8176
.300	1.3934	1.1917	.9754	
.500		1.2341		
.700		.5258		
.900	.3668	.4424	.5252	

MACH ( 2 ) = 2.950 ALPHA ( 3 ) = 10.000 PINF = .66350

Q(PSI) = 4.0417

RN/L = 3.0200

CPSTG = 1.7529

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	2.8354	2.5128	2.0827	2.4326
.300	1.2564	1.0816	.9365	
.500		1.0816		
.700		.4565		
.900	.3079	.3849	.4649	

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UPWT 1059 (IH4) 01 ALONE

ORB. VERT. TAIL

(MQ3VCB)

MACH ( 2 ) = 2.950 ALPHA ( 4 ) = 20.000 PINF = .66350

Q(PSI) = 4.0417

RN/L = 3.0200

CPSTG = 1.7529

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	3.0658	2.0725	1.5007	1.7140
.300	.8254	1.0026	.8964	
.500		.8812		
.700		.3140		
.900	.1543	.2423	.3662	

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -10.000 PINF = .32910

Q(PSI) = 3.1538

RN/L = 3.0000

CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	3.4443	3.9631	3.2907	4.1799
.300	1.0173	.7722	.8086	
.500		.8371		
.700		.4300		
.900	.3707	.4040	.3047	

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = -5.000 PINF = .32910

Q(PSI) = 3.1538

RN/L = 3.0000

CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	2.4595	3.0603	2.6080	3.3197
.300	.8460	.6343	.6131	
.500		.7071		
.700		.3808		
.900	.3002	.3402	.2492	

MACH ( 3 ) = 3.700 ALPHA ( 3 ) = .000 PINF = .32910

Q(PSI) = 3.1538

RN/L = 3.0000

CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	2.3810	2.2325	2.0004	2.5448
.300	.6185	.5487	.4783	
.500		.6035		
.700		.3502		
.900	.2286	.3099	.2226	

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) O. ALONE

ORB. VERT. TAIL

(MQ3VCB)

MACH ( 3) = 3.700 ALPHA ( 4) = 5.000 PINF = .32910

Q(PSI) = 3.1538

RN/L = 3.0000

CPSTG = 1.7839

SECTION ( 1) ORB. VERT. TAIL

DEPENDENT VAR ABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000 2.1745 1.9543 1.5328 1.9236

.300 .6305 .5051 .4210

.500 .5300

.700 .2883

.900 .1847 .2477 .2126

MACH ( 3) = 3.700 ALPHA ( 5) = 10.000 PINF = .32910

Q(PSI) = 3.1538

RN/L = 3.0000

CPSTG = 1.7839

SECTION ( 1) ORB. VERT. TAIL

DEPENDENT VAR ABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000 1.8622 1.6847 1.4355 1.6949

.300 .5518 .4554 .4307

.500 .4777

.700 .2265

.900 .1464 .1904 .1940

MACH ( 3) = 3.700 ALPHA ( 6) = 20.000 PINF = .32910

Q(PSI) = 3.1538

RN/L = 3.0000

CPSTG = 1.7839

SECTION ( 1) ORB. VERT. TAIL

DEPENDENT VAR ABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000 1.5925 1.2665 .9145 1.0771

.300 .2662 .4340 .3999

.500 .4166

.700 .1361

.900 .0851 .1061 .1804

MACH ( 4) = 4.600 ALPHA ( 1) = -10.000 PINF = .16595

Q(PSI) = 2.4580

RN/L = 3.0100

CPSTG = 1.8033

SECTION ( 1) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000 2.5018 3.1999 2.6776 3.5310

.300 .5933 .4977 .5274

.500 .4996

.700 .2256

.900 .2195 .2080 .1790

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UPWT 1059 (IH4) 01 ALONE

ORB. VERT. TAIL

(MQ3VCB)

MACH ( 4 ) = 4.600 ALPHA ( 2 ) = -5.000 PINF = .16595

Q(PSI) = 2.4580

RN/L = 3.0100

CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000 1.5102 2.1895 1.9881 2.6059

.300 .4223 .3654 .3744

.500 .3860

.700 .1939

.900 .1775 .1763 .1351

MACH ( 4 ) = 4.600 ALPHA ( 3 ) = .000 PINF = .16595

Q(PSI) = 2.4580

RN/L = 3.0100

CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000 1.5989 1.3924 1.4112 1.8771

.300 .2986 .2606 .2667

.500 .2618

.700 .1412

.900 .1273 .1327 .1062

MACH ( 4 ) = 4.600 ALPHA ( 4 ) = 5.000 PINF = .16595

Q(PSI) = 2.4580

RN/L = 3.0100

CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000 1.4453 1.2900 .9528 1.3088

.300 .3048 .2304 .2056

.500 .2256

.700 .1113

.900 .0992 .1010 .0901

MACH ( 4 ) = 4.600 ALPHA ( 5 ) = 10.000 PINF = .16595

Q(PSI) = 2.4580

RN/L = 3.0100

CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000 .3451 .3458 .3466 .3480

.300 .3489 .3458 .3466

.500 .3458

.700 .3443

.900 .3458 .3443 .3466



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UPWT 1059 (IH4) O ALONE

ORB. VERT. TAIL

(MQ3VCB)

MACH (4) = 4.600 ALPHA (6) = 20.000 PINF = .16595

Q(PST) = 2.4580

RN/L = 3.0100

CPSTG = 1.8033

SECTION (1) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/RV .2990 .5320 .7650 .9050

X/CV

.000 .5895 .8509 .4386 .5474

.300 .1538 .1876 .1834

.500 .1158

.700 .0579

.900 .0495 .0501 .0754

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UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCC) ( 15 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 5.000 BETA = .000

MACH ( 1 ) = 2.950 ALPHA ( 1 ) = .000 PINF = 1.0998 Q(PSI) = 6.6993 RN/L = 5.0025 CPSTG = 1.7529

## SECTION ( 1 ) ORBITER FUSELAGE

## DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	12.7644	7.0776	3.2187	2.2749		1.8379	1.5714	1.4178		1.2116					
10.000								1.4024							
20.000								1.4156							
24.500								1.4375							
39.000								1.9268							
163.000														5.5970	
174.000															
180.000	12.7644				3.9336			3.3208	3.2582	3.5471	8.1294	8.9800	8.8084		8.1424
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	1.1172	1.1194	1.1952	1.2020	1.1991		1.1952				.9292		.8778	.8490	
23.000		1.0909													
24.000	1.1830														
31.500	1.2269														
33.100		1.0931													
35.000	1.2379														
40.000	1.2576	1.0733													
45.000		1.0404													
50.000	1.5121														
51.600															
57.000		1.1183													
60.900		1.0655													
65.000		.9801													
68.000													.9296		
69.000		.9193													
79.300					1.0154										
95.500					1.0662		1.0480								
95.700		.9569													
96.300	1.6059														
103.000					1.0766										
105.000															.5191
112.600					1.0792										
117.500															
120.800															
127.900						2.8515									
129.500								3.4919							
									2.2212				1.1931	1.1606	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 701

UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCC)

MACH ( 1 ) = 2.950 ALPHA ( 1 ) = .000

SECTION ( 1 ) ORBITER FUSELAGE DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
130.000									2.8763	1.5026		1.2576			
135.000		.6106													
139.600									2.9131						
144.000												1.5291			
155.000	2.8188														
180.000	2.0956	.9059				.9782									

PHI

130.000

135.000

139.600

144.000

155.000

180.000

X/LB 1.0250 1.0500

PHI

.000

.8404

.8233

MACH ( 1 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = 1.0998 Q(P51) = 6.6993 RN/L = 5.0025 CPSTG = 1.7529

SECTION ( 1 ) ORBITER FUSELAGE DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	12.8890	8.1989	3.9833	2.8756		2.3414	1.9987	1.8105		1.5414					
10.000								1.7930							
20.000								1.8039							
24.500								1.8127							
39.000								1.9768							
163.000														4.7047	
174.000															
180.000	12.8890				3.1772			2.6251	2.5782	2.8006	6.5959	7.5428	7.2437		6.6987

PHI

.000

10.000

20.000

24.500

39.000

163.000

174.000

180.000

X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8000 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI

.000

23.000

24.000

31.500

33.100

35.000

40.000

45.000

50.000

51.600

57.000

60.900

65.000

68.000

1.3970

1.3598

1.4301

1.3966

1.4403

1.4520

1.1420

1.0941

1.0672

1.3554

1.4714

1.5195

1.3948

1.5457

1.6005

1.4210

1.4823

1.6508

1.0336

1.0258

1.0154

.8318

.6860

UPWT 1059 (1H4) 01 ALONE

## ORBITER FUSELAGE

(MQ3BCC)

MACH ( 1 ) = 2.950      ALPHA ( 2 ) = 5.000

## SECTION (1) ORBITER FUSELAGE

## DEPENDENT VARIABLE PL

[illegible]

X/LB	1.0250	1.0500
------	--------	--------

PHI  
.000 1.0642 1.0630

MACH (1) = 2.950    ALPHA (3) = 10.000    PINF = 1.0998    Q(PSI) = 6.6993    RN/L = 5.0025    CPSTG = 1.7529

## SECTION ( 1 ) ORBITER FUSELAGE

## DEPENDENT VARIABLE PL

[illegible]

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 703

UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCC)

MACH ( 1 ) = 2.950 ALPHA ( 3 ) = 10.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
24.000	1.8260														
31.500	1.8581														
33.100		1.7213													
35.000	1.8666														
40.000	1.8517	1.7298													
45.000		1.8068													
50.000	1.7127														
51.600													.4247		
57.000		.9644													
60.900		.9630													
65.000		.9487													
68.000													.5048		
69.000		.9432													
79.300					.8023										
95.500					.8132		.5574								
95.700		.9240													
96.300	1.6255														
103.000					.7838										
105.000															.3748
112.600					.6689										
117.500												.7236		.6990	
120.800									1.9231						
127.900						1.2643									
129.500								1.5532							
130.000								1.6287	.9669			.9740			
135.000		.3953			.5212										
139.600								1.3186							
144.000												1.0681			
155.000	2.0904														
180.000	1.3100	.5424			.8513										
X/LB	1.0250	1.0500													
PHI															
.000	1.4005	1.3958													

ORIGINAL PAGE IS  
OF POOR QUALITY

DATE 20 APR 76

TABULATED SOURCE DATA - 1H4

PAGE 704

UPWT 1059 (1H4) 01 ALONE										ORBITER FUSELAGE		(MQ3BCC)			
MACH (1) = 2.950		ALPHA (4) = 20.000		PINF = 1.0998		Q(PSI) = 6.6993		RN/L = 5.0025		CPSTG = 1.7529					
SECTION (1) ORBITER FUSELAGE					DEPENDENT VARIABLE PL										
X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	12.0408	11.2147	7.1220	5.5484		4.7838	4.0874	3.7815		3.3152					
10.000								3.7238							
20.000								3.6553							
24.500								3.4371							
39.000								1.9569							
163.000														1.9356	
174.000												2.6601			
180.000	12.0408				1.5173			1.4133	1.4612	1.5155	1.8667		3.4587		3.3325
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	3.0115	2.8446	2.9828	2.9930	3.0140		3.1238				2.5605		2.4833	2.4510	
23.000		2.7655													
24.000	2.9409														
31.500	2.8232														
33.100		2.7377													
35.000	2.7184														
40.000	2.3398	2.6072													
45.000		2.5644													
50.000	1.6061														
51.600													.2587		
57.000		.7688													
60.900		.8732													
65.000		.9015													
68.000													.2116		
69.000		.8995													
79.300					.3241										
95.500					.7688		.2109								
95.700		.8395													
96.300	1.2810														
103.000					.7957										
105.000															.2756
112.600					.6738										
117.500															
120.800								1.6213	</						

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 705

UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCC)

MACH (1) = 2.950 ALPHA (4) = 20.000

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB 1.0250 1.0500

PHI

.000 2.4701 2.4707

MACH (2) = 3.700 ALPHA (1) = -5.000 PINF = .54768

Q(PSI) = 5.2486

RN/L = 4.9900

CPSTG = 1.7839

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB .0000 .0050 .0200 .0400 .0500 .0600 .0800 .1000 .1250 .1500 .1600 .1650 .1700 .1750 .1800

PHI

.000	9.6305	4.2423	1.6737	1.0832		.8249	.6802	.5933		.4914				
10.000								.5783						
20.000								.5766						
24.500								.5866						
39.000								1.0945						
163.000													4.8262	
174.000														
180.000	9.6305				3.3693			2.8236	2.7675	3.0287	7.2663	8.1924	8.2184	7.7397

X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8000 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI

.000	.4579	.4462	.4700	.4581	.4563		.4531				.3214		.2979	.2870
23.000		.4128												
24.000	.4496													
31.500	.4462													
33.100		.3460												
35.000	.4128													
40.000	.3727	.3008												
45.000		.2724												
50.000	.7638													
51.600													.7913	
57.000		.6046												
60.900		.6005												
65.000		.5088												
68.000													.6566	
69.000		.4747												
79.300					.6080									
95.500					.6094		.5991							
95.700		.5075												
96.300	.8529													
103.000					.6114									
105.000														.2223
112.600					.6060									
117.500														
120.800														

1.2705

.5984

.6949





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TABULATED SOURCE DATA - IH4

PAGE 707

UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCC)

MACH ( 2 ) = 3.700 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
65.000		.5013													
68.000													.4360		
69.000		.4721													
79.300					.4986										
95.500					.5108		.4843								
95.700		.4925													
96.300	.8713														
103.000					.5101										
105.000															.1734
112.600					.5040										
117.500												.6265		.6707	
120.800								1.3561							
127.900						1.4536									
129.500								2.0038							
130.000									1.7986	.8989		.5639			
135.000		.3292			.4666										
139.600								1.7931							
144.000												.7441			
155.000	1.9257														
180.000	1.5186	.4553			.4757										

X/LB 1.0250 1.0500

PHI

.000 .3797 .3675

MACH ( 2 ) = 3.700 ALPHA ( 3 ) = 5.000 PINF = .54768 Q(PSI) = 5.2486 RN/L = 4.9900 CPSTG = 1.7839

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	9.7551	5.9900	2.7336	1.8649		1.4689	1.2123	1.0727		.8891					
10.000								1.1065							
20.000								1.1108							
24.500								1.1256							
39.000								1.2355							
163.000														3.2121	
174.000															
180.000	9.7551				2.0471			1.6210	1.6045	1.7579	4.3931	5.3231	5.2320		5.0005

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OF POOR QUALITY

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 708

UPWT 1059 (1H4) 01 ALONE

## ORBITER FUSELAGE

(MQ3BCC)

MACH ( 2 ) = 3.700      ALPHA ( 3 ) = 5.000

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

[illegible]

DATE 20 APR 76

TABULATED SOURCE DATA - 1H4

PAGE 709

UPWT 1059 (1H4) 01 ALONE

### ORBITER FUSELAGE

(MQ3BCC)

MACH ( 2 ) = 3.700    ALPHA ( 4 ) = 10.000    PINF = .54768

$$Q(PSI) = 5.2486$$

RN/L = 4.9900

CPSTG = 1.7839

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

[illegible]

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 710

UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCC)

MACH ( 2 ) = 3.700 ALPHA ( 4 ) = 10.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB 1.0250 1.0500

PHI

.000 .7248 .7169

MACH ( 2 ) = 3.700 ALPHA ( 5 ) = 20.000 PINF = .54768 Q(PS1) = 5.2486 RN/L = 4.9900 CPSTG = 1.7839

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB .0000 .0050 .0200 .0400 .0500 .0600 .0800 .1000 .1250 .1500 .1600 .1650 .1700 .1750 .1800

PHI

.000	9.2653	8.5160	5.1640	3.9386		3.3139	3.0063	2.7545		2.3802				
10.000								2.7211						
20.000								2.6765						
24.500								2.5228						
39.000								1.3264						

163.000														.9389
174.000														
180.000	9.2653					.8995		.7849	.8240	.8915	.9538	1.2143	1.7436	1.9218

X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8000 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI

.000	2.1463	1.9814	1.8678	1.9217	1.9388		2.0628				1.5529		1.4978	1.4697
23.000		1.9324												
24.000	2.0995													
31.500	1.9970													
33.100		1.9235												
35.000	1.9190													
40.000	1.6339	1.8433												
45.000		1.8054												
50.000	.9359													
51.600														
57.000		.3080											.1252	
60.900		.4454												
65.000		.4475												
68.000													.1293	
69.000		.4671												
79.300					.1313									
95.500					.3796		.0975							
95.700		.4272												
96.300	.7196													
103.000					.3913									
105.000														.1036
112.600					.3297									
117.500														
120.800								.9572			.2220		.2119	



DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCC)

MACH ( 3 ) = 4.600 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
65.000		.2936													
68.000													.3128		
69.000		.2608													
79.300					.3223										
95.500					.3217		.3217								
95.700		.2874													
96.300	.5811														
103.000					.2847										
105.000															.0739
112.600					.2799										
117.500												.2806		.3073	
120.800									.8463						
127.900						1.7236									
129.500								1.6831							
130.000									1.2746	.5434		.2991			
135.000		.2457			.3223										
139.600									1.3464						
144.000												.3716			
155.000	1.7631														
180.000	1.4964	.2867			.3647										
X/LB	1.0250	1.0500													
PHI															
.000	.1198	.1156													

MACH ( 3 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .27610 Q(P5I) = 4.0900 RN/L = 5.0000 CPSTG = 1.8033

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	7.6800	3.9099	1.5853	1.0016		.7391	.6198	.5282		.4032					
10.000								.5124							
20.000								.5247							
24.500								.5388							
39.000								.7800							
163.000															2.9987
174.000															
180.000	7.6800				1.8874			1.4862	1.4540	1.6239	4.2955	5.2098	5.3464		5.2358

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 713

UPWT 1059 (IH4) 01 /LONE

ORBITER FUSELAGE

(MQ3BCC)

MACH ( 3 ) = 4.600 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	.3433	.3152	.2942	.3036	.3013		.2979				.2069		.1905	.1856	
23.000		.3046													
24.000	.3627														
31.500	.3891														
33.100		.3117													
35.000	.3874														
40.000	.4067	.3028													
45.000		.3028													
50.000	.5335														
51.600													.2818		
57.000		.3231													
60.900		.3231													
65.000		.2920													
68.000													.2141		
69.000		.2872													
79.300					.2628										
95.500					.2628		.2242								
95.700		.2804													
96.300	.5893														
103.000					.2533										
105.000															.0732
112.600					.2364										
117.500												.3116		.3414	
120.800									.8915						
127.900						.9074									
129.500								1.0805							
130.000									1.0915	.5720		.2967			
135.000		.1985			.2107										
139.600									1.0878						
144.000												.3787			
155.000	1.4028														
180.000	1.1608	.2165			.2414										
X/LB	1.0250	1.0500													
PHI															
.000	.1783	.1699													

ORIGINAL PAGE IS  
A FOUR QUALITY

DATE 20 APR 76

TABULATED SOURCE DATA - 1H4

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UPWT 1059 (IH4) 01 / LONE

## ORBITER FUSELAGE

(MQ3BCC)

MACH (3) = 4.600 ALPHA (3) = 5.000 PINF = .27610

$$Q(\text{PSI}) = 4.0900$$

RN/L = 5.0000

CPSTG = 1.8033

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

[illegible]



DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 715

UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCC)

MACH ( 3 ) = 4.600 ALPHA ( 3 ) = 5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB 1.0250 1.0500

PHI

.000 .2719 .2622

MACH ( 3 ) = 4.600 ALPHA ( 4 ) = 10.000 PINF = .27610 Q(P51) = 4.0900 RN/L = 5.0000 CPSTG = 1.8033

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB .0000 .0050 .0200 .0400 .0500 .0600 .0800 .1000 .1250 .1500 .1600 .1650 .1700 .1750 .1800

PHI

.000 7.6561 5.3811 2.6025 1.7918 1.4078 1.2012 1.0185 .8049

10.000

.9931

20.000

1.0058

24.500

.9898

39.000

.8000

163.000

1.4938

174.000

180.000

7.6561

1.0280

.7492

.8097

.8581

1.5875

2.1220

2.6280

2.6839

X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8000 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI

.000 .6855 .5988 .6249 .6296 .6291 .6481 .4656 .4359 .4171

23.000

.6021

24.000

.6937

31.500

.7018

33.100

.6233

35.000

.7018

40.000

.6888

.6315

45.000

.6642

50.000

.5939

51.600

.0790

57.000

.2788

60.900

.2781

65.000

.2775

68.000

.1134

69.000

.2775

79.300

.1802

95.500

.1856

.1478

95.700

.2768

96.300

.5569

103.000

.1762

105.000

.0601

112.600

.1438

117.500

.2194

.2086

120.800

.6301

DATE 20 APR 76

TABULATED SOURCE DATA - 1H4

PAGE 716

UPWT 1059 (1H4) 01 / LONE

## ORBITER FUSELAGE

(MQ3BCC)

MACH ( 3 ) = 4.600 ALPHA ( 4 ) = 10.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------

PHI

127.900

129.500

130.000

135.000

139.600

144.000

155.000

180,000

X/LB	1.0250	1.0500
------	--------	--------

PHI

000

MACH ( 3 ) = 4.600    ALPHA ( 5 ) = 20.000    PINF = .27610    Q(PSI) = 4.0900    RN/L = 5.0000    CPSTG = 1.8033

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

PHI

.000

10.000

20.000

24.500

39.000

163.000

174.000

180.000

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------

PHI

000

23,000

24.000

31.500

33,100

35.000

40.000

45,000

50.000

51.600

57.000

60,900

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(MQ3BCC)

DEPENDENT VARIABLE PL

[illegible]

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORB. UPPER WING

(MQ3UCC) ( 15 APR 76 )

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
SCALE = .0100

PARAMETRIC DATA

RN/L = 5.000 BETA = .000

MACH ( 1 ) = 2.950 ALPHA ( 1 ) = .000 PINF = 1.0998 Q(PSI) = 6.6993 RN/L = 5.0025 CPSTG = 1.7529

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050 2.4000  
.200 .9799 1.2471 1.9461  
.600 .3855 .3630  
.800 .3061  
.900 1.6891 .5080  
.950 .4026

MACH ( 1 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = 1.0998 Q(PSI) = 6.6993 RN/L = 5.0025 CPSTG = 1.7529

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050 1.9083  
.200 .6983 .9215 1.4532  
.600 .2543 .2472  
.800 .2080  
.900 1.7382 .4007  
.950 .3656

MACH ( 1 ) = 2.950 ALPHA ( 3 ) = 10.000 PINF = 1.0998 Q(PSI) = 6.6993 RN/L = 5.0025 CPSTG = 1.7529

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050 .9829  
.200 .4082 .5669 1.1011  
.600 .1734 .1918  
.800 .1912  
.900 1.7960 .2691  
.950 .3383

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 719

UPWT 1059 (IH4) OI A-ONE

ORB. UPPER WING

(MQ3UCC)

MACH ( 1 ) = 2.950 ALPHA ( 4 ) = 20.000 PINF = 1.0998 Q(PSI) = 6.6993 RN/L = 5.0025 CPSTG = 1.7529

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.2399		
.200	.1617	1.7884	1.3718
.600	.1605	.2896	
.800		.6031	
.900		.2312	.2537
.950		4.8640	

MACH ( 2 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .54768 Q(PSI) = 5.2486 RN/L = 4.9900 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	1.7618		
.200	.7684	1.0488	1.7770
.600	.2815	.2905	
.800		.2387	
.900		.9294	.4225
.950		.3230	

MACH ( 2 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .54768 Q(PSI) = 5.2486 RN/L = 4.9900 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	1.5225		
.200	.5714	.8275	1.3705
.600	.1693	.2052	
.800		.1693	
.900		.9262	.3363
.950		.2316	

UPWT 1059 (IH4) 01 A. ONE

ORB. UPPER WING

(MQ3UCC)

MACH ( 2) = 3.700 ALPHA ( 3) = 5.000 PINF = .54768

Q(PSI) = 5.2486

RN/L = 4.9900

CPSTG = 1.7839

SECTION ( 1) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	1.1323		
.200	.3486	.5287	.9738
.600	.1178	.1248	
.800		.1231	
.900		.9261	.2214
.950		.1813	

MACH ( 2) = 3.700 ALPHA ( 4) = 10.000 PINF = .54768

Q(PSI) = 5.2486

RN/L = 4.9900

CPSTG = 1.7839

SECTION ( 1) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.5764		
.200	.1652	.3814	.7520
.600	.0844	.0940	
.800		.0922	
.900		.9471	.1886
.950		.1587	

MACH ( 2) = 3.700 ALPHA ( 5) = 20.000 PINF = .54768

Q(PSI) = 5.2486

RN/L = 4.9900

CPSTG = 1.7839

SECTION ( 1) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.2073		
.200	.0972	.1707	.4297
.600	.0646	.0776	
.800		.0782	
.900		.9589	.1233
.950		.1565	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 A ONE

ORB. UPPER WING

(MQ3UCC)

MACH ( 3 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .27610

Q(PSI) = 4.0900

RN/L = 5.0000

CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	1.1556		
.200	.4599	.7401	1.3878
.600	.1194	.1732	
.800		.1265	
.900		.5610	.3151
.950		.1744	

MACH ( 3 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .27610

Q(PSI) = 4.0900

RN/L = 5.0000

CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	1.0022		
.200	.3186	.5339	.9705
.600	.0842	.1157	
.800		.0943	
.900		.5647	.2017
.950		.1459	

MACH ( 3 ) = 4.600 ALPHA ( 3 ) = 5.000 PINF = .27610

Q(PSI) = 4.0900

RN/L = 5.0000

CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.7273		
.200	.1838	.3565	.7053
.600	.0705	.0834	
.800		.0822	
.900		.5714	.1615
.950		.1286	

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TABULATED SOURCE DATA - IH4

PAGE 722

UPWT 1059 (IH4) 01 ALONE

ORB. UPPER WING

(MQ3UCC)

MACH ( 3 ) = 4.600 ALPHA ( 4 ) = 10.000 PINF = .27610 Q(PSI) = 4.0900 RN/L = 5.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.3508		
.200	.0885	.2561	.5147
.600	.0493	.0636	
.800		.0660	
.900		.5759	.1414
.950		.1183	

MACH ( 3 ) = 4.600 ALPHA ( 5 ) = 20.000 PINF = .27610 Q(PSI) = 4.0900 RN/L = 5.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.1309		
.200	.0704	.1339	.2427
.600	.0518	.0646	
.800		.0681	
.900		.5798	.1275
.950		.1228	



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TABULATED SOURCE DATA - IH4

PAGE 723

UPWT 1059 (IH4) 01 A'ONE

ORB. LOWER WING

(MQ3LCC) ( 15 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 5.000 BETA = .000

MACH ( 1 ) = 2.950 ALPHA ( 1 ) = .000 PINF = 1.0998 Q(PS1) = 6.6993 RN/L = 5.0025 CPSTG = 1.7529

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE FL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000						4.8486		5.5774		.9180
.001	1.1260	1.1172		3.8006	1.7623	1.9647		1.7973		
.002					1.3322			1.6287		
.003					6.4205			5.9495		
.004					2.2988			2.2757		
.005					1.4946			1.6299		
.025			1.3959	1.4551		.7798				
.045			1.4156							
.100						1.3373		1.6526	1.7491	
.153	1.0711									
.177				1.1055						
.200			1.0385							
.299	1.1781									
.302			1.1072				1.5515			
.428						1.3160				
.444	1.1798									
.487				1.2973						
.559			1.3518							
.600					1.2275					
.700					1.0181					
.736	1.2701									
.800					.8539					
.850					.7547					
.900			.7021		.6623	.6868		.7937		

MACH ( 1 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = .0998 Q(PS1) = 6.6993 RN/L = 5.0025 CPSTG = 1.7529

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000						5.7139		5.7310		.5315
.001	1.4145	1.3991		4.6835	2.7120	5.7020		2.6230		
.002					2.1737			2.3903		
.003					6.0911			5.2087		
.004					3.3808			3.2131		
.005					2.3794			2.4357		

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORB. LOWER WING

(MQ3LCC)

MACH ( 1 ) = 2.950 ALPHA ( 2 ) = 5.000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.025				2.2613	2.5326		2.6858			
.045				2.2744						
.100						2.0904		2.4866	2.4691	
.153	1.4517									
.177					1.8353					
.200				1.5918						
.299	1.4307									
.302				1.6157			2.2916			
.428						2.0470				
.444	1.4494									
.487					1.9329					
.559				1.8296						
.600						1.8472				
.700						1.5532				
.736	1.6145									
.800						1.2886				
.850						1.1282				
.900				.9790		.9717	.0941	1.1411		

MACH ( 1 ) = 2.950 ALPHA ( 3 ) = 10.000 PINF = .0998 Q(PSI) = 6.6993 RN/L = 5.0025 CPSTG = 1.7529

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000						6.5280		5.7737		.3172
.001		1.5310	1.2467		5.3578	3.6453	6.5058	3.6757		
.002						2.9997		3.4652		
.003						5.5723		4.6353		
.004						4.5585		4.3059		
.005						3.3011		3.5157		
.025				2.5828	3.4316		3.6624			
.045				2.6726						
.100						2.9215		3.5299	3.2456	
.153	1.7875									
.177					2.5850					
.200				2.1139						
.299	1.7496									
.302				2.1503			3.2404			
.428						2.7978				
.444	1.7814									
.487					2.6292					
.559				2.3597						
.600						2.5566				

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TABULATED SOURCE DATA - IH4

PAGE 725

UPWT 1059 (IH4) 01 ALONE

ORB. LOWER WING

(MQ3LCC)

MACH (1) = 2.950 ALPHA (3) = 10.000

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.700						2.1751				
.736	2.0464									
.800						1.8064				
.850						1.5825				
.900				1.3610		1.3634	.6011	1.5773		

MACH (1) = 2.950 ALPHA (4) = 20.000 PINF = .0998 Q(PSI) = 6.6993 RN/L = 5.0025 CPSTG = 1.7529

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						7.6016		5.5501		.3379
.001		1.8735	1.4307		6.0467	5.7056	.5743	3.1777		
.002						4.7526		6.9887		
.003						4.7274		.4812		
.004						6.8045		.2580		
.005						5.2629		.1384		
.025				3.4093	4.8660		6.1190			
.045				3.7238						
.100						5.2224		6.2094	4.4917	
.153	2.7847									
.177					4.3561					
.200				3.4986						
.299	2.9590									
.302				3.6036			5.4537			
.428						4.8581				
.444	3.0804									
.487					4.4271					
.559				3.9498						
.600						4.3732				
.700						3.7540				
.736	3.4368									
.800						3.1405				
.850						2.8143				
.900				2.4306		2.4360	2.8317	2.6476		

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OF POOR QUALITY

DATE 20 APR 76

TABULATED SOURCE DATA - 1H4

PAGE 726

UPWT 1059 (1H4) 01 ALONE      ORB. LOWER WING      (MQ3LCC)

MACH ( 2 ) = 3.700    ALPHA ( 1 ) = -5.000    PIINF = .54768    Q(PSI) = 5.2486    RN/L = 4.9900    CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

	.1972	.1922	2.1103	3.0289	4.0922	.5231
.001				.7905	.8386	
.002				.5114	.6602	
.003				4.7868	5.1230	
.004				1.1737	1.1414	
.005				.6301	.7100	
.025		.2173	.5148		.7755	
.045		.2156				
.100				.5262	.7187	.8106
.153	.2774					
.177			.2371			
.200		.1991				
.299	.2471					
.302		.2068			.5766	
.428				.3580		
.444	.2857					
.487			.2519			
.559		.2839				
.600				.2880		
.700				.2272		
.736	.454					
.800				.1722		
.850				.1444		
.900		.1970		.1299	.1825	.3105

MACH (2) = 3.700 ALPHA (2) = .000 PINF = .54768 Q(PSI) = 5.2486 RN/L = 4.9900 CPSTG = 1.7839

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				3.4880		4.3533		.5592
.001	.5527	.5608	2.7394	1.1879	3.7884	1.2668		
.002				.8151		1.0574		
.003				4.6929		4.7151		
.004				1.6242		1.7444		
.005				.9472		1.0875		
.025		.7548	.9227		1.1750			
.045		.7564						
.100				.8242		1.0911	1.2201	
.153	.5168							
.177			.5745					
.200		.4857						
.299	.5289							

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 727

UPWT 1059 (IH4) G1 ALONE

ORB. LOWER WING

(MQ3LCC)

MACH ( 2 ) = 3.700 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.302

.428

.444

.487

.559

.600

.700

.736

.800

.850

.900

.5111

.5828

.3031

.9038

.6823

.6053

.6142

.4854

.3912

.3341

.2867

.3353

.4129

MACH ( 2 ) = 3.700 ALPHA ( 3 ) = 5.000 PINF = .54768 Q(PSI) = 5.2486 RN/L = 4.9900 CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000

.001

.002

.003

.004

.005

.025

.045

.100

.153

.177

.200

.299

.302

.428

.444

.487

.559

.600

.700

.736

.800

.850

.900

.7888

.7684

3.4350

4.2714

1.9102

1.4640

4.6332

2.3564

1.6458

1.4576

1.4513

1.7727

1.8404

1.2936

1.7452

1.7473

1.0642

.8670

.8831

.9861

1.1885

1.4019

1.0983

1.0654

.8528

.6879

.5922

.5056

.5988

.6643

.5988

.5988

.5988

.5988

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TABULATED SOURCE DATA - 1H4

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UPWT 1059 (IH4) 01 ALONE		ORB. LOWER WING		(MQ3LCC)	
MACH (2) =	3.700	ALPHA (4) =	10.000	PINF =	.54768
				Q(PSI) =	5.2486
				RN/L =	4.9900
				CPSTG =	1.7839

SECTION (1) ORB. LOWER WING DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				5.0838		4.6264		.2002
.001	.8463	.6885	4.1021	2.6426	5.0223	2.5874		
.002				2.0853		2.2838		
.003				4.5393		3.6842		
.004				3.2746		3.2255		
.005				2.3190		2.3542		
.025		1.7810	2.4904		2.5826			
.045		1.8367						
.100				1.9296		2.4668	2.1668	
.153	1.0845							
.177			1.5795					
.200		1.2555						
.299	1.0421							
.302		1.2657			2.0755			
.428				1.7816				
.444	1.0755							
.427			1.6108					
.559		1.3900						
.600				1.5835				
.700				1.3015				
.736	1.1647							
.800				1.0465				
.850				.9005				
.900		.7369		.7630	.9369		.9698	

MACH (2) = 3.700    ALPHA (5) = 20.000    PINF = .54768    Q(PSI) = 5.2486    RN/L = 4.9900    CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				6.4662		3.6979		.2165
.001	1.1281	.8756	4.9490	4.6305	6.5925	4.2990		
.002				3.7705		3.9591		
.003				4.2099		2.2523		
.004				5.3483		4.6193		
.005				4.2339		4.0465		
.025		2.6231	3.9153		4.9023			
.045		2.8347						
.100				3.6088		4.3430	3.2558	
.153	1.9926							
.177			2.9103					
.200		2.3650						
.299	1.9461							

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 729

UPWT 1059 (IH4) 01 ALONE

ORB. LOWER WING

(MQ3LCC)

MACH ( 2 ) = 3.700 ALPHA ( 5 ) = 20.000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.302

2.4251

3.7009

.428

3.3899

.444

2.0398

.487

3.0834

.559

2.5835

.600

3.0914

.700

2.6033

.736

2.2634

.800

2.1347

.850

1.8671

.900

1.5541

1.6020

1.7468

1.7445

MACH ( 3 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .27610

Q(P51) = 4.0900

RN/L = 5.0000

CPSTG = 1.8033

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000

2.3823

3.5770

.3366

.001

.1246

.1027

1.7317

.5655

2.7971

.7088

.002

.3602

.5274

.003

3.9081

4.5652

.004

.9441

.9426

.005

.4275

.5791

.025

.1464

.4023

.5841

.045

.1363

.100

.3660

.5470

.6194

.153

.1616

.177

.1521

.200

.1365

.299

.1384

.1159

.3659

.302

.428

.2363

.444

.1384

.487

.1234

.559

.1272

.600

.1876

.700

.1295

.736

.1534

.800

.0956

.850

.0775

.900

.0811

.0672

.1017

.1725

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TABULATED SOURCE DATA - IH4

PAGE 730

UPWT 1059 (1H4) 01 ALONE				ORB. LOWER WING		(MQ3LCC)	
MACH ( 3 ) =	4.600	ALPHA ( 2 ) =	.000	PINF =	.27610	Q(PSI) =	4.0900
						RN/L =	5.0000
						CPSTG =	1.8033

SECTION ( 1) ORS. LOWER WING			DEPENDENT VARIABLE PL							
2Y/8W	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						2.8158		3.5890		.3574
.001		.3363	.3398		2.2164	.9261	3.1725	1.0004		
.002						.6057		.7787		
.003						3.7528		3.9133		
.004						1.2849		1.5162		
.005						.7430		.8233		
.025				.5212	.7430		.8997			
.045				.5141						
.100						.5659		.8663	.8909	
.153	.3081									
.177					.3518					
.200				.2725						
.299	.2748									
.302				.2690			.5949			
.428						.4217				
.444	.2789									
.487					.3553					
.559				.3154						
.600						.3594				
.700						.2736				
.736	.3013									
.800						.2032				
.850						.1626				
.900				.1298		.1347	.1796		.2588	

MACH (3) = 4.600    ALPHA (3) = 5.000    PINF = .37610    Q(PSI) = 4.0900    RN/L = 5.0000    CPSTG = 1.8033

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TABULATED SOURCE DATA - IH4

PAGE 731

UPWT 1059 (IH4) 01 ALONE

ORB. LOWER WING

(MQ3LCC)

MACH (3) = 4.600 ALPHA (3) = 5.000

SECTION (1) ORB. LOWER WING		DEPENDENT VARIABLE PL								
2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.302				.5251			.9728			
.428						.7859				
.444	.4269									
.487				.7025						
.559				.5864						
.600						.6876				
.700						.5335				
.736	.4650									
.800						.4160				
.850						.3488				
.900				.2616		.2919	.3633		.4084	

MACH (3) = 4.600 ALPHA (4) = 10.000 PINF = .37610 Q(P51) = 4.0900 RN/L = 5.0000 CPSTG = 1.8033

SECTION (1) ORB. LOWER WING		DEPENDENT VARIABLE PL								
2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						4.2819		3.0957		.1554
.001		.5448	.4434		3.4037	2.0890	4.2580	1.7910		
.002						1.6111		1.5537		
.003						3.8672		2.2782		
.004						2.6008		2.3120		
.005						1.8129		1.6116		
.025				1.2522	1.8872		2.0656			
.045				1.2968						
.100						1.4171		1.6982	1.5113	
.153	.7002									
.177					1.0895					
.200				.8317						
.299	.6762			.8299			1.3767			
.302						1.2751				
.428										
.444	.6874				1.1253					
.487										
.559				.9000						
.600						1.1196				
.700						.8924				
.736	.7357									
.800						.6930				
.850						.5844				
.900				.4480		.4886	.5929		.6656	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 732

UPWT 1059 (IH4) 01 ALONE

ORB. LOWER WING

(MQ3LCC)

MACH ( 3 ) = 4.600 ALPHA ( 5 ) = 20.000 PINF = .27610

Q(PSI) = 4.0900

RN/L = 5.0000

CPSTG = 1.8033

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						5.6507		2.8824		.1776
.001		.8729	.6750		4.4372	3.6256	3.8569	3.2818		
.002						2.9338		2.9572		
.003						3.7682		1.4402		
.004						4.4560		3.6677		
.005						3.2681		3.0451		
.025				1.9918	3.0894		3.1504			
.045				2.1474						
.100						2.8179		3.0474	2.3619	
.153	1.4262									
.177					2.2052					
.200				1.7620						
.299	1.4210									
.302				1.7836			2.6530			
.428						2.6808				
.444	1.4925									
.487					2.3290					
.559				1.9147						
.600						2.2881				
.700						1.8472				
.736	1.6253									
.800						1.4725				
.850						1.2576				
.900				1.0721		1.0595	1.1756		1.2841	

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORB. VERT. TAIL

(MQ3VCC) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 5.000 BETA = .000

MACH ( 1 ) = 2.950 ALPHA ( 1 ) = .000 PINF = 1.0998 Q(PSI) = 6.6993 RN/L = 5.0025 CPSTG = 1.7529

## SECTION ( 1 ) ORB. VERT. TAIL

## DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

## X/CV

.000 5.7395 5.5364 4.4851 5.7054  
 .300 2.6982 2.0865 1.5633  
 .500 2.2930  
 .700 1.0408  
 .900 .7058 .9047 .9690

MACH ( 1 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = 1.0998 Q(PSI) = 6.6993 RN/L = 5.0025 CPSTG = 1.7529

## SECTION ( 1 ) ORB. VERT. TAIL

## DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

## X/CV

.000 5.1371 5.0193 3.7973 4.6711  
 .300 2.3187 2.0194 1.5436  
 .500 2.0404  
 .700 .8532  
 .900 .6005 .7311 .8726

MACH ( 1 ) = 2.950 ALPHA ( 3 ) = 10.000 PINF = 1.0998 Q(PSI) = 6.6993 RN/L = 5.0025 CPSTG = 1.7529

## SECTION ( 1 ) ORB. VERT. TAIL

## DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

## X/CV

.000 4.6796 4.2461 3.3825 4.0209  
 .300 2.0206 1.9183 1.5209  
 .500 1.7818  
 .700 .7442  
 .900 .5016 .6380 .7581

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UPWT 1059 (IH4) 01 ALONE

ORB. VERT. TAIL

(MQ3VCC)

MACH ( 1 ) = 2.950 ALPHA ( 4 ) = 20.000 PINF = 1.0998

Q(PSI) = 6.6993

RN/L = 5.0025

CPSTG = 1.7529

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE: PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000 3.4184 .5430 2.8091 1.7744

.300 1.6489 .4246 1.7888

.500 2.4865

.700 1.4855

.900 1.3964 .6124 1.7888

MACH ( 2 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .54768

Q(PSI) = 5.2486

RN/L = 4.9900

CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE: PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000 4.0734 5.1367 4.2014 5.5190

.300 1.5044 1.0112 1.0244

.500 1.2027

.700 .6543

.900 .5051 .5770 .3909

MACH ( 2 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .54768

Q(PSI) = 5.2486

RN/L = 4.9900

CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE: PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000 3.9539 3.8020 3.3327 4.2253

.300 1.0693 .8547 .7946

.500 1.0705

.700 .5905

.900 .3712 .5133 .3481

MACH ( 2 ) = 3.700 ALPHA ( 3 ) = 5.000 PINF = .54768

Q(PSI) = 5.2486

RN/L = 4.9900

CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE: PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000 3.5938 3.3685 2.5800 3.2149

.300 1.1854 .7883 .7088

.500 .9293

.700 .4990

.900 .3233 .4267 .3657

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORB. VERT. TAIL

(MQ3VCC)

MACH ( 2 ) = 3.700 ALPHA ( 4 ) = 10.000 PINF = .54768

Q(PS1) = 5.2486

RN/L = 4.9900

CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	3.0630	2.7814	2.4042	2.8172
.300	1.1207	.7708	.6981	
.500		.8490		
.700		.4115		
.900	.2485	.3448	.3369	

MACH ( 2 ) = 3.700 ALPHA ( 5 ) = 20.000 PINF = .54768

Q(PS1) = 5.2486

RN/L = 4.9900

CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	2.6687	2.0117	1.5423	1.7847
.300	.5321	.8072	.6805	
.500		.7539		
.700		.2369		
.900	.1109	.1739	.3091	

MACH ( 3 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .27610

Q(PS1) = 4.0900

RN/L = 5.0000

CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	2.5632	3.8245	3.3588	4.3877
.300	.6862	.5973	.6384	
.500		.6433		
.700		.3232		
.900	.2996	.3080	.2166	

MACH ( 3 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .27610

Q(PS1) = 4.0900

RN/L = 5.0000

CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	2.6025	2.4011	2.4182	3.1589
.300	.5375	.4483	.4525	
.500		.4877		
.700		.2827		
.900	.2075	.2645	.1699	

UPWT 1059 (IH4) 01 ALONE

ORB. VERT. TAIL

(HQ3VCC)

MACH ( 3 ) = 4.600 ALPHA ( 3 ) = 5.000 PINF = .27610

Q(PSI) = 4.0900

RN/L = 5.0000

CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000 2.4318 2.1263 1.6228 2.2048

.300 .5214 .3869 .3421

.500 .4033

.700 .2059

.900 .1653 .1883 .1508

MACH ( 3 ) = 4.600 ALPHA ( 4 ) = 10.000 PINF = .27610

Q(PSI) = 4.0900

RN/L = 5.0000

CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000 1.9266 1.8806 1.5631 1.8396

.300 .4486 .3607 .3735

.500 .3644

.700 .1691

.900 .1116 .1407 .1328

MACH ( 3 ) = 4.600 ALPHA ( 5 ) = 20.000 PINF = .27610

Q(PSI) = 4.0900

RN/L = 5.0000

CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000 1.1944 1.2542 .7654 .9615

.300 .1951 .3654 .2978

.500 .2875

.700 .0924

.900 .0640 .0707 .1305

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCD) ( 15 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 3.000 BETA = -5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32910 Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) ORBITER FUSELAGE

## DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	5.7876	2.6234	1.0532	.6722		.5080	.4114	.3529		.2894					
10.000								.3463							
20.000								.3594							
24.500								.3935							
39.000								.8423							
163.000															
174.000															
180.000	5.7876				1.9962			1.6714	1.6429	1.8341	4.3899	5.1976	4.8685		4.5629
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	.2667	.2553	.2709	.2619	.2518		.2711				.1728		.1565	.1528	
23.000		.2146													
24.000	.2585														
31.500	.2699														
33.100		.2033													
35.000	.2455														
40.000	.2634	.1594													
45.000		.1642													
50.000	.6374														
51.600															
57.000		.4644											.6407		
60.900		.4624													
65.000		.4603													
68.000													.4802		
69.000		.4296													
79.300					.4815										
95.500					.4904	.4467									
95.700		.4521													
96.300	.8196														
103.000					.4877										
105.000															.1169
112.600					.4829										
117.500															
120.800															
127.900															
129.500															

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1.7864

1.8720

1.1911

.5607

.6140





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(MQ3BCD)

DEPENDENT VARIABLE: PL

PHI		
.000	.2171	.2135

DEPENDENT VARIABLE: PL

[illegible]

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 740

UPWT 1059 (1H4) 01 AL(INE

## ORBITER FUSELAGE

(MQ3BCD)

MACH ( 2 ) = 4.600      ALPHA ( 1 ) = -5.000

## SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

[illegible]

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 AL(NE

ORBITER FUSELAGE

(MQ3BCD)

MACH ( 2) = 4.600 ALPHA ( 2) = .000 PINF = .6610

Q(P51) = 2.4595

RN/L = 3.0100

CPSTG = 1.8033

SECTION ( 1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	4.5823	2.3857	.9843	.6119		.4493	3857	.3280		.2487					
10.000								.3262							
20.000								.3532							
24.500								.3929							
39.000								.6741							
163.000														2.1481	
174.000															
180.000	4.5823				1.1210			.8805	.8712	.9931	2.4771	3.2991	3.1691		3.0910
X/LB	.2000	.3000	.4000	.5000	.6000	.7630	8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	.2109	.1874	.1746	.1746	.1607		.1715				.1003		.0838	.0912	
23.000		.1838													
24.000	.2343														
31.500	.2739														
33.100		.2001													
35.000	.2703														
40.000	.3046	.1928													
45.000		.2127													
50.000	.4812														
51.600															
57.000		.2819											.1724		
60.900		.2724													
65.000		.2630													
68.000															
69.000		.2589											.2271		
79.300						.2386									
95.500						.2184									
95.700		.2569					.1758								
96.300	.5557														
103.000					.2177										
105.000															.0629
112.600					.1947										
117.500												.3312		.3610	
120.800									.7160						
127.900						.5570									
129.500								1.0483							
130.000									.8443	.4063		.2298			
135.000		.1548			.1372										
139.600									.6434						
144.000												.2251			
155.000	1.0932														
180.000	.6981	.1516			.1440										

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DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 742

UPWT 1059 (IH4) 01 AL(NE

ORBITER FUSELAGE

(MQ3BCD)

MACH ( 2) = 4.600 ALPHA ( 2) = .000

SECTION ( 1) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB 1.0250 1.0500

PHI  
.000 .0839 .0803

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORB. UPPER WING

(MQ3UCD) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = -5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32910 Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) ORB. UPPER WING

## DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

## X/CW

.050 .7994  
 .200 .3655 .4566 .7889  
 .600 .1466 .1291  
 .800 .1261  
 .900 .5313 .2087  
 .950 .1791

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32910 Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) ORB. UPPER WING

## DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

## X/CW

.050 .6517  
 .200 .2423 .3245 .5956  
 .600 .0900 .0876  
 .800 .0990  
 .900 .5218 .1757  
 .950 .1457

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .16610 Q(PSI) = 2.4595 RN/L = 3.0100 CPSTG = 1.8033

## SECTION ( 1 ) ORB. UPPER WING

## DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

## X/CW

.050 .4696  
 .200 .1999 .2802 .5819  
 .600 .0530 .0625  
 .800 .0643  
 .900 .3124 .1452  
 .950 .1202

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 744

UPWT 1059 (IH4) 01 AL ONE

ORB. UPPER WING

(MQ3UCD)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .16610

Q(P51) = 2.4595

RN/L = 3.0100

CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

ZY/BW .4000 .6000 .8000

X/CW

.050	.3775		
.200	.1318	.2108	.3978
.600	.0616	.0708	
.800		.0772	
.900		.3310	.1376
.950		.1161	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORB. LOWER WING

(MQ3LCD) ( 15 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = -5.000

## PARAMETRIC DATA

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32910 Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) ORB. LOWER WING

## DEPENDENT VARIABLE PL

2Y/BW .2500 .3011 .3480 .4000 .5000 .6000 .7500 .8500 .9500 .9980

## X/CW

.000						2.3315		3.1661		.4309
.001	.2000	.1545		1.7011	.6228	2.5483		.6939		
.002					.4260			.5554		
.003					3.6764			3.8915		
.004					.9480			.8846		
.005					.5057			.5906		
.025			.1984	.4293		.6277				
.045			.1886							
.100					.4361		.5772	.5886		
.153	.1724									
.177				.2166						
.200			.1175							
.299	.1694									
.302			.1414			.4642				
.428					.3073					
.444	.1694									
.487				.2070						
.559			.1587							
.600					.2494					
.700					.1856					
.736	.1563									
.800					.1449					
.850					.1176					
.900			.1146		.1001	.1510		.2479		

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32910 Q(PSI) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) ORB. LOWER WING

## DEPENDENT VARIABLE PL

2Y/BW .2500 .3011 .3480 .4000 .5000 .6000 .7500 .8500 .9500 .9980

## X/CW

.000						2.6568		3.3685		.4213
.001	.4164	.4099		2.1137	.8899	2.9674		.9927		
.002					.6172			.8194		
.003					3.5528			3.6228		
.004					1.2487			1.3747		
.005					.7315			.8496		

UPWT 1059 (1H4) 01 ALONE

ORB. LOWER WING

(MQ3LCD)

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.025				.5258	.7005		.8801			
.045				.5193						
.100						.6314		.8426	.8573	
.153	.3282									
.177					.4344					
.200				.2989						
.299	.3088									
.302				.3041			.6909			
.428						.5129				
.444	.3071									
.487					.4042					
.559				.3530						
.600						.4263				
.700						.3468				
.736	.3274									
.800						.2757				
.850						.2326				
.900				.1686		.1979	.2565		.3279	

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = 16610 Q(PSI) = 2.4595 RN/L = 3.0100 CPSTG = 1.8033

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						1.9574		1.9266		.2540
.001		.1319	.1107		1.4299	.4656	2.2782	.4451		
.002						.3126		.3352		
.003						3.2101		2.4677		
.004						.7557		.6089		
.005						.3842		.3857		
.025				.1449	.3484		.4916			
.045				.1367						
.100						.3270		.4216	.3940	
.153	.1058									
.177					.1474					
.200				.0571						
.299	.0773									
.302				.0594			.2995			
.428						.2021				
.444	.0719									
.487					.1123					
.559				.0689						
.600						.1515				



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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORB. LOWER WING

(MQ3LCD)

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.30.1	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.700						.1149				
.736	.0713									
.800						.0871				
.850						.0744				
.900				.0629		.0641	.0901		.1563	

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .16610 Q(PS1) = 2.4595 RN/L = 3.0100 CPSTG = 1.8033

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						2.3141		2.1861		.2091
.001		.2812	.2830		1.7444	.7443	.9232	.6432		
.002						.5281		.5542		
.003						3.1179		2.2680		
.004						1.0408		.9065		
.005						.6200		.5478		
.025				.4055	.6200		.6290			
.045				.3947						
.100						.4654		.5749	.5749	
.153	.2109									
.177					.2864					
.200				.1799						
.299	.1665									
.302				.1758			.4529			
.428						.3434				
.444	.1583									
.487					.2567					
.559				.1933						
.600						.2829				
.700						.2013				
.736	.1642									
.800						.1411				
.850						.1125				
.900				.0718		.0943	.1307		.1879	

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UPWT 1059 (IH4) O1 ALONE

ORB. VERT. TAIL

(MQ3VCD) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = -5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32910 Q(PS1) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	2.5022	3.1507	2.8760	3.2924
.300	1.4105	1.0706	.8775	
.500		1.2112		
.700		.5634		
.900	.4130	.4760	.4597	

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32910 Q(PS1) = 3.1538 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	2.3308	2.3769	2.2899	2.5356
.300	1.1788	.9484	.7726	
.500		1.0615		
.700		.5071		
.900	.3289	.4389	.4353	

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .16610 Q(PS1) = 2.4595 RN/L = 3.0100 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.6348	2.3192	2.2526	2.6537
.300	.7808	.6102	.5510	
.500		.6459		
.700		.3417		
.900	.2455	.2909	.2159	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORB. VERT. TAIL

(MQ3VCD)

MACH ( 2) = 4.600 ALPHA ( 2) = .000 PINF = 16610

Q(PST) = 2.4595

RN/L = 3.0100

CPSTG = 1.8033

SECTION ( 1)ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.5989	1.5733	1.6211	1.8925
.300	.5704	.4786	.4208	
.500		.5169		
.700		.2949		
.900	.1782	.2524	.1824	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ38CE) ( 15 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 3.000 BETA = 5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = 32905 Q(PSI) = 3.1531 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) ORBITER FUSELAGE

## DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	5.7381	2.5175	1.0344	.6698		.5089	.4568	.3915		.3190					
10.000								.3770							
20.000								.3680							
24.500								.3643							
39.000								.5293							
163.000														2.3725	
174.000												4.3444			
180.000	5.7381				1.9705			1.6549	1.6273	1.7651	4.0946		4.6994		4.4588
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	.2900	.2791	.2656	.2956	.2907		.2772				.1744		.1599	.1551	
23.000		.2900													
24.000	.3027														
31.500	.3100														
33.100		.2628													
35.000	.2973														
40.000	.2846	.2284													
45.000		.2103													
50.000	.3752														
51.600															
57.000		.2495											.3809		
60.900		.2236													
65.000		.2041													
68.000														.3250	
69.000		.1859													
79.300					.2607										
95.500					.2334		.2607								
95.700		.1496													
96.300	.3382														
103.000					.2313										
105.000															.0957
112.600					.2257										
117.500															
120.800								.4014							
127.900						.9756									
129.500								1.0430							

DATE 20 APR 76

TABULATED SOURCE DATA - 1H4

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UPWT 1059 (1H4) 01 ALJNE

ORBITER FUSELAGE

(MQ3BCE)

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
130.000									.7824	.3754		.1747			
135.000		.2215			.2460										
139.600								1.1184							
144.000												.3403			
155.000	1.1382														
180.000	1.1629	.3122			.3607										
X/LB	1.0250	1.0500													
PHI															
.000	.1521	.1473													

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32905 Q(PSI) = 3.1531 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	5.7996	3.0074	1.3177	.8799		.6739	.5653	.4891		.3909					
10.000								.4654							
20.000								.4570							
24.500								.4468							
39.000								.5196							
163.000														1.9251	
174.000															
180.000	5.7996				1.5527			1.2629	1.2399	1.3502	3.2375	3.5054	3.8124		3.6615
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	.3453	.3249	.3290	.3284	.3261		.3363				.2360		.2192	.2126	
23.000		.3317													
24.000	.3486														
31.500	.3622														
33.100		.3300													
35.000	.3622														
40.000	.3706	.3249													
45.000		.3182													
50.000	.3977														
51.600															
57.000		.2414											.2537		
60.900		.2264													
65.000		.2161													
68.000														.2093	

UPWT 1059 (1H4) 01 ALONE

## ORBITER FUSELAGE

(MQ3BCE)

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000

SECTION (1) ORBITER FUSELAGE DEPENDENT VARIABLE PL

[illegible]

X/LB	1.0250	1.0500
------	--------	--------

PHI			
.000	.2108	.2060	

MACH ( 2 ) = 4.600    ALPHA ( 1 ) = -5.000    PINF = .16595    Q(PS1) = 2.4581    RN/L = 3.0100    CPSTG = 1.8033

SECTION ( 1 ) ORBITER FUSELAGE DEPENDENT VARIABLE: PL

[illegible]

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ38CE)

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PL

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
24.000	.1502														
31.500	.1586														
33.100		.1185													
35.000	.1469														
40.000	.1385	.1051													
45.000		.0985													
50.000	.1936														
51.600													.1731		
57.000		.1234													
60.900		.1240													
65.000		.1240													
68.000													.1350		
69.000		.1227													
79.300					.0866										
95.500					.0859		.1295								
95.700		.0872													
96.300	.2140														
103.000					.0852										
105.000														.0409	
112.600					.0866										
117.500												.0968		.0886	
120.800									.2638						
127.900						.4387									
129.500								.7080							
130.000									.5118	.2295		.0913			
135.000		.0859			.1275										
139.600									.7376						
144.000												.1847			
155.000	.8394														
180.000	.9095	.1743			.2020										
X/LB	1.0250	1.0500													
PHI															
.000	.0678	.0648													

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DATE 20 APR 76

TABULATED SOURCE DATA - 1H4

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UPWT 1059 (1H4) 01 ALJNE

### ORBITER FUSELAGE

(MQ3BCE)

MACH ( 2 ) = 4.600    ALPHA ( 2 ) = .000    PINF = .16595

$$Q(PSI) = 2.4581$$

RN/L = 3.0100

CPSTG = 1.8033

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE: PL

[illegible]



DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORBITER FUSELAGE

(MQ3BCE)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE: PL

X/LB 1.0250 1.0500

PHI  
.000 .0824 .0781

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALJNE

ORB. UPPER WING

(MQ3UCE) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = 5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32905 Q(PSI) = 3.1531 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	1.4595		
.200	.6231	.8251	1.3753
.600	.2132	.2334	
.800		.1949	
.900		.6243	.3489
.950		.2387	

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32905 Q(PSI) = 3.1531 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	1.2553		
.200	.4871	.6731	1.0652
.600	.1593	.1994	
.800		.1575	
.900		.6429	.2761
.950		.2087	

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .16595 Q(PSI) = 2.4581 RN/L = 3.0100 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	1.0321		
.200	.4242	.6232	.9440
.600	.0981	.1583	
.800		.1176	
.900		.3716	.2310
.950		.1577	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORB. UPPER WING

(MQ3UCE)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .16595

Q(PST) = 2.4581

RN/L = 3.0100

CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PL

2Y/BW .4000 .6000 .8000

X/CW

.050	.8718		
.200	.2828	.4627	.6822
.600	.0771	.1052	
.800		.0873	
.900		.3850	.1782
.950		.1357	

UPWT 1059 (IH4) 01 AL(INE

ORB. LOWER WING

(MQ3LCE) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = 5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32905 Q(P51) = 3.1531 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) ORB. LOWER WING

## DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						1.4696		1.8724		.2501
.001		.1885	.1994		.9571	.4278	1.4986	.4082		
.002						.2773		.3170		
.003						2.2837		2.3776		
.004						.6191		.5728		
.005						.3372		.3329		
.025				.2193	.2900		.3825			
.045				.2320						
.100						.2721		.3571	.3970	
.153	.2066									
.177					.1744					
.200				.1940						
.299	.2326									
.302				.2007			2785			
.428						.2007				
.444	.2809									
.487					.2344					
.559				.2266						
.600						.1971				
.700						.1666				
.736	.2895									
.800						.1425				
.850						.1269				
.900				.1377		.1173	1167		.1307	

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32905 Q(P51) = 3.1531 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) ORB. LOWER WING

## DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						1.8263		1.9987		.2420
.001		.3165	.3283		1.4161	.6516	1.7854	.6161		
.002						.4671		.5150		
.003						2.3144		2.2257		
.004						.9026		.8377		
.005						.5399		.5324		

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 759

UPWT 1059 (IH4) 01 ALONE

ORB. LOWER WING

(MQ3LCE)

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.025

.045

.100

.153

.177

.200

.299

.302

.428

.444

.487

.559

.600

.700

.736

.800

.850

.900

.4976

.5043

.3317

.3203

.3395

.3627

.3366

.3546

.3958

.2108

.5687

.4502

.3447

.4127

.3749

.3081

.2486

.2114

.1820

5839

4662

1910

.1970

.8500

.5483

.5771

.1970

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .6595

Q(P51) = 2.4581

RN/L = 3.0100

CPSTG = 1.8033

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000

.001

.002

.003

.004

.005

.025

.045

.100

.153

.177

.200

.299

.302

.428

.444

.487

.559

.600

.0951

.0901

.6826

.2504

.1636

.17406

.4266

.1969

.0935

.1769

.0968

.1711

.0839

.0892

.0909

.1068

.1015

.1026

.1015

.0933

1.0989

1.2098

1.7406

2.0034

.2299

.2537

.2537

.2537

.2537

.2537

.2537

.2537

.2537

.2537

.2537

.2537

.2537

.2537

1.5392

.2886

.2076

2.0034

.4189

.2299

.2537

.2537

.2537

.2537

.2537

.2537

.2537

.2537

.2537

.2537

.2537

.2537

.2537

.1419

.2886

.2076

2.0034

.4189

.2299

.2537

.2537

.2537

.2537

.2537

.2537

.2537

.2537

.2537

.2537

.2537

.2537

.2537

UPWT 1059 (IH4) 01 AL(NE

ORB. LOWER WING

(MQ3LCE)

MACH ( 2) = 4.600 ALPHA ( 1) = -5.000

SECTION ( 1)ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	------	-------	-------	-------

X/CW

.700

.736

.800

.850

.900

.1249

.0858

.0780

.0714

.0696

.0678

0726

.0791

MACH ( 2) = 4.600 ALPHA ( 2) = .000 PINF = .6595 Q(P51) = 2.4581 RN/L = 3.0100 CPSTG = 1.8033

SECTION ( 1)ORB. LOWER WING

DEPENDENT VARIABLE PL

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	------	-------	-------	-------

X/CW

.000

.001

.002

.003

.004

.005

.025

.045

.100

.153

.177

.200

.299

.302

.428

.444

.487

.559

.600

.700

.736

.800

.850

.900

.1553 .1570

.9534

1.3446

.4247

.2875

1.6706

.6381

.3404

.2627

.2644

.3652

4197

.2816

1.5853

.4636

.3541

1.7423

.6362

.3792

.3734

.3883

.1899

.1759

.1835

.2272

2854

.2126

.2021

.1459

.1084

.0902

.0787

0878

.1040

.1685

.1637

.1660

.1811

.2027

.0854

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) 01 ALONE

ORB. VERT. TAIL

(MQ3VCE) ( 15 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 3.000 BETA = 5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32905 Q(P51) = 3.1531 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000 2.5858 2.8248 2.1898 3.1542  
 .300 .4606 .4329 .4389  
 .500 .4119  
 .700 .1972  
 .900 .2231 .2117 .2483

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32905 Q(P51) = 3.1531 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000 2.3998 2.0977 1.6710 2.4186  
 .300 .3315 .3087 .3309  
 .500 .2907  
 .700 .1604  
 .900 .1537 .1718 .2048

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .6595 Q(P51) = 2.4581 RN/L = 3.0100 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000 1.7696 2.1093 1.7150 2.5411  
 .300 .2604 .2592 .2628  
 .500 .2358  
 .700 .1110  
 .900 .1368 .1230 .1410

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OF POOR QUALITY

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 762

UPWT 1059 (IH4) 01 ALJNE

ORB. VERT. TAIL

(MQ3VCE)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .6595 Q(PST) = 2.4581 RN/L = 3.0100 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE: PL

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.6553	1.4351	1.1842	1.8294
.300	.1714	.1629	.1732	
.500		.1471		
.700		.0745		
.900	.0763	.0830	.0975	



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(MQ3TDA) ( 15 APR 76 )

### PARAMETRIC DATA

RN/L = 1.200 BETA = .000

MACH (1) = 3.700    ALPHA (1) = -5.000    PINF = .3185    Q(PSI) = 1.2633    RN/L = 1.2000    CPSTG = 1.7839

DEPENDENT VARIABLE: PL

[illegible]

THETA	1000										2000										3000										4000										5000									
45.000																																																		
67.500																																																		
90.000																																																		
112.500																																																		
123.000																																																		
135.000																																																		
157.500																																																		
161.000																																																		
166.000																																																		
180.000																																																		
197.000																																																		
210.000																																																		
220.000																																																		
232.000																																																		

THETA  
123.000 .1744

UPWT 1059 (IH4) T15 (LONE

EXTERNAL TANK

(MQ3TDA)

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE: PL

X/LT .9250 .9350 .9370 .9750

THETA

151.000	.3218		
180.000		.3230	.0529
210.000		.4382	

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .3185 Q(PSI) = 1.2633 RN/L = 1.2000 CPSTG = 1.7839

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE: PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000			.9065	.5956	.2368										.1246
45.000															.0999
67.500															.1016
90.000							1070	.0998	.0986	.0986	.0980		.1064		.1016
112.500									.1004	.1010	.0998		.1034		.1032
135.000											.1028		.1052	.1100	.1124
157.500															.1421
167.000															.1014
180.000	2.3412	1.6790	1.7472	.8832	.6142	.2550	1450	.0855		.0828			.0917	.1000	.1062
197.000					.6124	.2777				.0848					
210.000						.2748									.0966
220.000															.0910
225.000															
232.000												.1062			.0952

X/LT .4250 .4500 .4750 .5000 .5250 .5500 5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000												.1369			
45.000												.1052			.1046
67.500												.1106			.1147
90.000				.1034								.1124			.1194
112.500		.1028		.1034		.1034				.1083	.1316	.1217	.1112	.1164	.1281
123.000		.1064		.1052		.1052				.1217	.1118	.1129	.1135	.1205	.1141
135.000															.1164
157.500		.1070		.1064		.1076		.1176	.1153	.1118	.1135	.1141	.1560		.1176
161.000	.0986	.0821	.0793	.0848		.0793		.1259	.1135	.1215	.1191	.1215	.1191		.1928
166.000															
180.000	.1193	.2945	.1117	.0752		.0938	.0883	.0834	.1172	.1116	.1129	.1184	.1160	.1246	.1817
197.000				.0648							.1191				.1842
210.000				.0952											
220.000									.1222				.1153		
232.000				.1483					.1253				.1129		

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) T15 ALONE

EXTERNAL TANK

(MQ3TDA)

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000 .1857

151.000 .3485

180.000 .2976 .0626

210.000 .3764

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .66200-01 Q(PSI) = .98085 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000 .5042 .3092 .1027 .0579

45.000 .0316

67.500 .0533

90.000 .0545

112.500 .0623 .0557 .0545

135.000 .0629 .0623

157.500 .0695 .0707 .0719 .0737

167.000 .1074

180.000 1.7441 1.3413 1.3908 .7474 .5311 .2207 .225 .0585 .0557 .0557 .0606 .0661

197.000 .5200 .2381 .2288 .0702

210.000 .0613

220.000 .0592

225.000 .0668

232.000 .0420

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000 .0615 .0734

45.000 .0340 .0364 .0382

67.500 .1028 .0581 .0540 .0552 .0540 .0569

90.000 .0546 .0761 .0645 .0616 .0552 .0592 .0581

112.500 .0623 .0599 .0593 .0616 .0674 .0592 .0755

123.000 .0689 .0659 .0671 .0743 .0726 .0679 .0691 .0674 .0656 .0598 .0929

135.000 .0674 .0482 .0434 .0482 .0392 .0876 .0571 .0616 .0578 .0578 .0578 .0650

157.500 .0399 .0475 .0330 .0454 .0530 .0489 .0622 .0584 .0540 .0616 .0584 .0667 .0650

161.000 .0399 .0475 .0330 .0454 .0530 .0489 .0622 .0584 .0540 .0616 .0584 .0667 .0650

166.000 .0475 .0330 .0454 .0530 .0489 .0622 .0584 .0540 .0616 .0584 .0667 .0650

180.000 .0330 .0454 .0530 .0489 .0622 .0584 .0540 .0616 .0584 .0667 .0650

197.000 .0606 .1032 .0667 .0717 .0451

210.000 .1032

220.000 .0667 .0717 .0451

232.000 .0451

UPWT 1059 (IH4) T15 ALONE

EXTERNAL TANK

(MQ3TDA)

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000 .0865

151.000 .2013

180.000 .1562 .0165

210.000 .2775

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .60200-01 Q(PS1) = .98085 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000 .6591 .4217 .1697 .0875

45.000 .0606

67.500 .0558

90.000 .1075 .0546 .0546 .0540

112.500 .1764 .0570 .0564 .0576 .0570 .0576 .0576 .0576

135.000 .0576 .0588 .0594 .0612 .0624

157.500 .1064

167.000 .0435

180.000 1.8216 1.2874 1.2601 .6107 .4217 .1566 .1902 .0373 .0359 .0380 .0415 .6470

197.000 .4189 .1752

210.000 .1694 .0415

220.000 .0408

225.000 .0498

232.000 .0387

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000 .0630 .0968

45.000 .0612 .0554 .0537

67.500 .1042 .0605 .0553 .0576 .0559 .0600

90.000 .0546 .0540 .0528 .0565 .0687 .0582 .0611 .0629

112.500 .0588 .0570 .0564 .0710 .0605 .0617 .0605 .0681 .0611 .0763

123.000 .0704 .0629 .0920

135.000 .0600 .0594 .0600 .0658 .0646 .0617 .0623 .0623 .0728 .0652

157.500 .0484 .0352 .0304 .0359 .0304 .0967 .0331 .0375 .0344 .0344 .0331 .0643

161.000 .0311

166.000 .0318

180.000 .0498 .1251 .0574 .0263 .0380 .0380 .0339 .0344 .0299 .0305 .0331 .0312 .0394 .0617

197.000 .0394 .0356 .0356 .0305 .0305 .0630

210.000 .0947 .0407 .0280

220.000

232.000

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) T15 ALONE

EXTERNAL TANK

(MQ3TDA)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000

.0844

151.000

.1699

180.000

.1075

-.0019

210.000

.1718

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DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) T15 ALONE

EXTERNAL TANK

(MQ3T08)

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -10.000

SECTION ( 1 ) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA  
 151.000 .9159  
 180.000 1.0408 .1226  
 210.000 1.2654

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = -5.000 PINF = .32890 Q(P51) = 3.1518 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA  
 .000 1.8157 1.1238 .4553 .2436  
 45.000 .2147  
 67.500 .2137  
 90.000 .2371  
 112.500 .2816  
 135.000 .3476  
 157.500 .4082  
 167.000 .4489  
 180.000 5.8690 4.7084 4.4951 2.7956 1.9151 .8647 .4914 .3605 .3570 .3564 .4137  
 197.000 1.8911 .9584 .3557  
 210.000 .9322  
 220.000 .4109  
 225.000 .3612  
 232.000 .3391 .2521

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA  
 .000 .2454 .2983  
 45.000 .2183 .2213 .2556  
 67.500 .2169 .2245  
 90.000 .2419 .2305 .2233 .2146  
 112.500 .2774 .2533 .2582 .2204 .2477 .2280 .2169 .2192 .2448  
 123.000 .2745 .2640 .2541 .2518 .2518 .2448 .2710  
 135.000 .2978 .3044 .3236 .3047 .2954 .2960 .2937 .2948 .2559  
 157.500 .4468 .3018 .2901 .3564 .2659 .4350 .3188 .3176 .3170 .3109 .3152 .6076  
 161.000 .2238  
 166.000 .2811  
 180.000 .5338 .8605 .2914 .2141 .3819 .3515 .3191 .3545 .3379 .3225 .3391 .3330 .3354 .5898  
 197.000 .4102 .3317 .3410 .6346  
 210.000 .4130 .3336  
 220.000 .2900 .2654  
 232.000

UPWT 1059 (IH4) T15 ALONE

EXTERNAL TANK

(MQ3TDB)

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = -5.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000 .4926

151.000 .8017

180.000 .8484 .1051

210.000 .9387

MACH ( 1 ) = 3.700 ALPHA ( 3 ) = .000 PINF = .32890 Q(P51) = 3.1518 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000 2.2482 1.4568 .6181 .2860

45.000 .2843

67.500 .2555

90.000 .2567

112.500 .2633

135.000 .2873

157.500 .3059

180.000 5.8451 4.0923 4.3346 2.2344 1.5295 .6470 .3532 .2486 .2486 .2535 .2735 .3142

197.000 1.5305 .7087 .2500 .2977

210.000 .7041 .2735

220.000 .2990

225.000 .3059

232.000 .2990

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000 .2854 .2866 .2736

45.000 .2666 .2748 .2898

67.500 .2645 .2857 .2938

90.000 .2621 .2657 .2687 .2909

112.500 .2693 .2663 .2717 .2869 .2880 .2869 .2845 .2863 .2933

123.000 .2693 .2687 .2807 .2927 .2781 .2793 .2828 .2857 .2461 .2950 .2915

135.000 .2562 .2693 .2687 .2602 .2437 .2494 .2558 .2558 .2666 .2537

157.500 .2493 .2562 .2369 .2693 .2238 .2602 .2437 .2494 .2558 .2666 .4931

161.000 .2265

166.000 .2307

180.000 .4268 .6008 .2590 .1582 .2914 .2693 .2396 .2494 .2360 .2449 .2538 .2558 .2647 .4829

197.000 .3198

210.000 .2628 .2729 .2513

220.000 .3184

232.000 .2710



DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) T15 ALONE

EXTERNAL TANK

(MQ3TDB)

MACH (1) = 3.700 ALPHA (3) = .000

SECTION (1) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000	.4521			
151.000		.7075		
180.000			.6687	.0662
210.000			.8532	

MACH (1) = 3.700 ALPHA (4) = 5.000 PINF = .32890 Q(PS1) = 3.1518 RN/L = 3.0000 CPSTG = 1.7839

SECTION (1) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000															.3625
45.000				2.7321	1.8507	.8448									.3009
67.500															.2696
90.000															.2407
112.500															.2275
135.000															.2371
157.500															.2415
167.000															.2181
180.000	5.8485	3.7748	3.3703	1.7080	1.1735	.4757	.2562	.1732		.1732			.1974	.2084	.2367
197.000					1.2112	.5240				.1774					.2215
210.000						.5403									.1950
220.000															
225.000												.2291			
232.000															.2464

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000															
45.000								.3314				.3367			
67.500								.2869				.2798			.2745
90.000						.2648		.2812	.2597	.2585	.2585	.2562			.2556
112.500		.2401				.2395		.2434		.2632	.2498	.2439	.2463		.2463
123.000		.2341				.2389		.2413		.2515	.2492	.2457	.2480		.2620
135.000														.2387	.2765
157.500	.2119	.2333	.2215			.2431		.2449	.2620	.2521	.2492	.2492	.2556	.3301	.3225
161.000	.2188					.2415		.2250	.2577	.2395	.2439	.2496	.2584	.2747	.4727
166.000						.1801									
180.000	.3313	.3720	.1787			.1546	.2160	.2070	.2153	.2364	.2250	.2489	.2502	.2477	.2653
197.000						.2112						.2426			.4388
210.000										.2357		.2351			.4224
220.000						.2574							.2169		
232.000										.2477					
									.2439				.2326		

UPWT 1059 (IH4) T15 ALCVE

EXTERNAL TANK

(MQ3TDB)

MACH (1) = 3.700 ALPHA (4) = 5.000

SECTION (1) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000	.3546			
151.000		.6399		
180.000			.6167	.0893
210.000			.7719	

MACH (2) = 4.600 ALPHA (1) = -10.000 PINF = .16520 Q(PSI) = 2.4476 RN/L = 2.9950 CPSTG = 1.8033

SECTION (1) EXTERNAL TANK DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000															.0965
45.000				.9411	.5267	.1710									.0644
67.500										.1336				.0893	.0803
90.000							.1321	.1246	.1252	.1222	.1192			.1144	.1096
112.500									.1666	.1696	.1648			.1624	.1582
135.000											.2139			.2163	.2241
157.500															.3074
167.000															.3625
180.000	4.1284	3.6113	3.3024	2.2919	1.6036	.7350	.4131	.2874					.2708	.2660	.3074
197.000					1.5576	.8042				.2702					.2819
210.000						.7647									.2764
220.000															
225.000														.2488	
232.000															.1468

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000															
45.000								.0971				.1269			
67.500						.0761		.0656				.0590			.0524
90.000		.1084				.1001		.1226	.0825	.0779	.0808	.0773			.0813
112.500		.1576				.1396		.0866		.1145	.0930	.0813	.0813		.0819
123.000								.1505	.1365	.1319	.1302	.1319	.1197		.1650
135.000		.2013				.2013							.1209	.1336	.2034
157.500	.3411	.2233	.1909			.2385		.1964	.1888	.1871	.1906	.1900	.3271		.1772
161.000	.1778					.1771		.3385	.2167	.2174	.2130	.2061	.2124		.4085
166.000						.2157									
180.000	.4273	.7092	.2261			.1647	.2667	.2695	.2350	.2592	.2511	.2498	.2442	.2455	.3991
197.000						.3019							.2442		.4785
210.000										.2636			.2399		
220.000						.2888									
232.000								.1362					.2461	.1237	

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 773

UPWT 1059 (IH4) T15 ALCNE

EXTERNAL TANK

(MQ3TDB)

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -10.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000	.2435			
151.000		.5709		
180.000			.6365	.0712
210.000			.8151	

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = -5.000 PINF = .16320 Q(PSI) = 2.4476 RN/L = 2.9950 CPSTG = 1.8033

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000															.1283
45.000				1.2917	.7767	.2772									.1042
67.500										.1480				.1125	.1059
90.000							.1748	.1282	.1276	.1258	.1252			.1233	.1209
112.500									.1468	.1486	.1450			.1450	.1462
135.000											.1661			.1679	.1859
157.500															.2277
167.000															.2243
180.000	4.4442	3.3126	3.4560	1.9560	1.3395	.5474	.2326	.1912		.1836			.1794	.1808	.2312
197.000					1.3128	.6067				.1822					.2112
210.000						.5870									.1877
220.000															
225.000												.1946			
232.000															.1332

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000								.1160				.1436			
45.000								.1112				.1018			
67.500					.1041			.1478	.1123	.1070	.1117	.1047			.0971
90.000		.1209			.1149		.1089	.1082		.1367	.1216	.1070			.1094
112.500		.1432			.1318		.1264	.1425	.1385	.1344	.1291	.1321	.1245		.1111
123.000															.1361
135.000		.1582			.1528		.1637	.1716	.1571	.1524	.1513	.1495	.1099	.1152	.1629
157.500	.2215	.1429	.1463	.1718		.1339		.2875	.1677	.1677	.1658	.1622	.2484		.1425
161.000	.1277												.1628		.3176
166.000					.1712					.1837					
180.000	.2788	.5418	.1939	.1056	.1670	.1836	.1608	.1867	.1757	.1671	.1781	.1744	.1757		.2979
197.000				.2291						.1732					.3268
210.000								.1923				.1720			
220.000				.2340						.1855					
232.000								.1548				.1345			

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OF POOR QUALITY

UPWT 1059 (IH4) T15 ALONE

EXTERNAL TANK

(MQ3TDB)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = -5.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000 .2292

151.000 .4711

180.000 .4472 .0627

210.000 .5835

MACH ( 2 ) = 4.600 ALPHA ( 3 ) = .000 PINF = .16320 Q(PSI) = 2.4476 RN/L = 2.9950 CPSTG = 1.8033

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000 1.6883 1.0681 .4153 .1539

45.000 .1271

67.500 .1363

90.000 .1309

112.500 .1754 .1351 .1339 .1700 .1303 .1315 .1309

135.000 .1345 .1333 .1309 .1339 .1351 .1417 .1459

157.500 .1617

167.000 .1396

180.000 4.5739 3.1010 3.1249 1.5631 1.0552 .3923 .2008 .1182 .1126 .1209 .1334 .1458

197.000 1.0469 .4354 .1133

210.000 .4348 .1306

220.000 .1223

225.000 .1431

232.000 .1341

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000 .1301 .1521

45.000 .1265 .1229 .1181

67.500 .1676 .1380 .1321 .1374 .1321 .1374

90.000 .1315 .1309 .1315 .1577 .1449 .1339 .1397

112.500 .1363 .1339 .1333 .1461 .1385 .1385 .1432 .1385 .1484

123.000 .1381 .1351 .1345 .1484 .1420 .1380 .1385 .1374 .1298 .1414 .1636

135.000 .1120 .1085 .1202 .1030 .2186 .1019 .1032 .1019 .1026 .1032 .1426

157.500 .1244 .1120 .1085 .1202 .1030 .2186 .1019 .1032 .1019 .1026 .1032 .2218

161.000 .1085

166.000 .1196

180.000 .1824 .3905 .1686 .1078 .1216 .1092 .1083 .0942 .1032 .1006 .0994 .1058 .2000

197.000 .1472 .1078 .1216 .1092 .1083 .0942 .1032 .1006 .0994 .1058 .2026

210.000 .1783

220.000 .1128 .1224 .0987

232.000 .1173 .0968

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 775

UPWT 1059 (IH4) T15 ALCNE

EXTERNAL TANK

(MQ3TDB)

MACH ( 2 ) = 4.600 ALPHA ( 3 ) = .000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000 .2288

151.000 .3936

180.000 .3404 .0173

210.000 .4654

MACH ( 2 ) = 4.600 ALPHA ( 4 ) = 5.000 PINF = .16520 Q(P51) = 2.4476 RN/L = 2.9950 CPSTG = 1.8033

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000 2.0931 1.3947 .5885 .2310

45.000 .1652

67.500 .1447

90.000 .1231

112.500 .1170 .1357 .1321 .1892 .1267 .1520 .1123

135.000 .1153 .1147 .1123 .1105 .1147 .1171

157.500 .1075 .1360

167.000 .0959

180.000 4.5910 2.8876 2.3671 1.1196 .7773 .2767 .1436 .0787 .0773 .0890 .0932 .0966

197.000 .8045 .3070 .0780

210.000 .3157 .0932

220.000 .0911

225.000 .1028

232.000 .1084

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000 .2310 .1922

45.000 .1505 .1352

67.500 .1651 .1308 .1250 .1256 .1215 .1293

90.000 .1195 .1165 .1135 .1145 .1198 .1122 .1203

112.500 .1135 .1123 .1117 .1244 .1157 .1163 .1174 .1267 .1262 .1401

123.000 .1171 .1165 .1165 .1308 .1221 .1198 .1221 .1233 .1413 .1297 .1512

135.000 .1008 .0994 .0945 .0959 .0932 .2052 .1229 .1265 .1247 .1284 .1308 .1355

157.500 .0939 .0863 .0856 .0911 .0883 .0856 .1265 .1179 .1259 .1284 .1296 .1259 .1351 .1806

166.000 .1208 .1249 .0849 .0870 .1198 .1247 .1284 .1161 .1843

180.000 .1387 .1321 .1167

197.000

210.000

220.000

232.000

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 776

UPWT 1059 (IH4) T15 ALCNE

EXTERNAL TANK

(MQ3TDB)

MACH ( 2) = 4.600 ALPHA ( 4) = 5.000

SECTION ( 1)EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT	.9250	.9350	.9370	.9750
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THETA

123.000	.1355			
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151.000		.2862		
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180.000			.3084	.0555
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210.000			.3563	
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DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) T15 ALCNE

EXTERNAL TANK

(MQ3TDC) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ. FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 5.000 BETA = .000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .54715 Q(P51) = 5.2436 RN/L = 4.9900 CPSTG = 1.7839

## SECTION ( 1 ) EXTERNAL TANK

## DEPENDENT VARIABLE PL

X/LT	.0000	.0050	.0100	.0400	.0800	.1500	.2000	.2500	.2750	.3000	.3250	.3350	.3500	.3750	.4000
THETA															
.000				3.0661	1.8911	.7662									.3881
45.000															.3532
67.500															.3760
90.000								.5244	.4113	.4096	.4131	.4161	.3718		.4131
112.500									.4671	.4755	.4695	.4749	.4203		.4623
135.000											.5301	.5319	.5307		.5247
157.500															.6189
167.000															.8070
180.000	9.7330	7.7157	7.4119	4.5936	3.1315	1.4106	.6004	.6106		.6154			.6106	.6086	.6788
197.000					3.1085	1.5763				.6072					
210.000						1.5212									.7085
220.000															.6092
225.000												.5631			
232.000															.4335
X/LT	.4250	.4500	.4750	.5000	.5250	.5500	.5750	.6000	.6500	.7000	.7500	.8000	.8500	.8750	.9000
THETA															
.000								.4290				.4929			
45.000								.3917				.4343			.4438
67.500					.3790			.3932	.3845	.3874	.3886	.3932			.4089
90.000		.4060			.4018	.4018		.3985		.4019	.3816	.3752			.3706
112.500		.4581			.4647	.4575		.4502	.4345	.4252	.4211	.4200	.3746		.4060
123.000													.4165		.4420
135.000		.5792			.5187	.5319		.4937	.4862	.4926	.4908	.4873	.3020	.3892	.4194
157.500	.7533	.5183	.5079	.6403		.4514		.6165	.5234	.5203	.5178	.5078	.5215		.9766
161.000	.3901														
166.000					.4900					.5625					
180.000	.9359	1.3126	.4804	.3584	.6782	.5803	.5389	.5861	.5451	.5283	.5525	.5414	.5432		1.0821
197.000				.6988						.5414					1.0663
210.000								.5705				.5643			
220.000					.6327					.5364					
232.000								.4880				.4489			

X/LT .9250 .9350 .9370 .9750

THETA  
123.000 .8661

UPWT 1059 (IH4) T15 ALONE

EXTERNAL TANK

(MQ3TDC)

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

151.000

1.1228

180.000

1.3480

.1403

210.000

1.5167

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .54715 Q(P51) = 5.2436 RN/L = 4.9900 CPSTG = 1.7839

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000

3.7831 2.4508 1.0544

.4740

45.000

.4308

67.500

.4334

90.000

.5267

.4208

.4172

.4412

.4220

.4226

.4316

.4364

.4352

112.500

.4208

.4256

.4244

.4424

.4436

.4406

.4346

135.000

.4322

.4352

.4406

.4406

.5055

157.500

167.000

180.000

9.7050

6.7387

6.8753

3.6249

2.4904

1.0506

.5710

.4248

.4255

.4283

.4366

.4421

.4421

.4421

.5559

197.000

2.5060

1.1789

1.1641

210.000

220.000

225.000

232.000

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000

.4711

.4740

45.000

.4515

.4728

.4829

67.500

.4687

.4692

.4791

.4861

.4896

.4867

.4913

.4902

90.000

.4406

.4436

.4450

.4562

.4681

.4687

.4692

.4791

.4861

.4896

.4867

.4913

.4902

.4861

112.500

.4430

.4460

.4464

.4694

.4820

.4791

.4768

.4751

.4768

.4768

.4890

.4890

.4890

.4890

123.000

135.000

.5572

.5085

.4310

.4688

.4814

.4814

.4780

.4547

.4611

.4663

.4721

.4687

.4687

.4687

.4687

157.500

.4007

.4310

.4310

.5090

.3945

.5209

.4534

.4583

.4700

.4687

.4687

.4687

.4687

.4687

.4687

161.000

166.000

180.000

.8028

.8848

.4455

.3938

.3124

.5393

.4462

.4062

.4565

.4332

.4503

.4626

.4669

.4810

.8835

197.000

.5421

.5421

.4786

.4786

.4460

.4454

.4454

.4454

.4454

.4454

.8044

210.000

220.000

232.000

.5228

.4957

.4620



DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) T15 ALO-IE

EXTERNAL TANK

(MQ3TDC)

MACH (1) = 3.700 ALPHA (2) = .000

SECTION (1) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000 .8268

151.000 .9031

180.000 1.0086 .1497

210.000 1.3224

MACH (2) = 4.600 ALPHA (1) = -5.000 PINF = .27620 Q(PS1) = 4.0915 RN/L = 5.0100 CPSTG = 1.8033

SECTION (1) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2100 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000 2.1426 1.2740 .4564 .2000

45.000 .1686

67.500 .1876

90.000 .2121

112.500 .2481

135.000 .2894

157.500 .3731

167.000 .4697

180.000 7.5835 5.6908 5.8580 3.3176 2.2429 .9373 .5001 .3503 .3455 .3421 .3379 .3986

197.000 2.2116 1.0597

210.000 1.0268 .3979

220.000 .3503

225.000 .3159

232.000 .2359

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000 .2030 .2356

45.000 .1775 .1864 .1917

67.500 .2082 .1814 .1791 .1785 .1744 .1791

90.000 .2079 .1983 .2140 .1907 .1803 .1785

112.500 .2487 .2415 .2233 .2169 .2157 .2093

123.000 .2445 .2431 .2332 .2233 .2157 .2093

135.000 .2840 .2838 .2628 .2646 .2617 .2582 .1971 .2419

157.500 .4586 .2786 .2800 .3586 .2483 .3481 .2660 .2647 .2622 .2552 .2578 .2233

161.000 .2269

166.000 .3290

180.000 .5386 .8772 .3352 .2028 .3552 .3434 .2317 .2963 .2849 .2660 .2824 .2786 .2761 .5648

197.000 .4352

210.000 .3077

220.000 .3497

232.000 .2382 .2097

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UPWT 1059 (IH4) T15 ALOJE

EXTERNAL TANK

(MQ3TDC)

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE 'L

X/LT .9250 .9350 .9370 .9750

THETA

123.000 .4239

151.000 .7448

180.000 .7688 .0606

210.000 .9641

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .27320 Q(PSI) = 4.0915 RN/L = 5.0100 CPSTG = 1.8033

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE 'L

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2100 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000

2.7970 1.7655 .6964

45.000

.2672

67.500

.2236

90.000

.2298

112.500

.3784

.2340

.2310

.2585

.2298

.2262

.2328

.2304

.2280

135.000

.2310

.2292

.2250

.2286

.2304

.2298

.2400

157.500

.2525

167.000

.2726

180.000

7.6443

5.2105

5.1371

2.6415

1.7858

.6777

.3438

.2243

.2167

.2181

.2174

.2353

.2857

197.000

1.7757

.7627

.7615

.2574

210.000

.2353

220.000

225.000

.2705

232.000

.2616

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000

.2678

.2666

45.000

.2247

.2247

.2218

67.500

.2316

.2571

.2368

.2362

.2379

.2368

.2379

90.000

.2310

.2322

.2328

.2356

.2583

.2449

.2408

.2408

.2420

.2432

.2437

112.500

.2358

.2334

.2352

.2478

.2449

.2443

.2420

.2420

.2432

.2496

.2565

123.000

135.000

.2382

.2346

.2424

.2560

.2443

.2391

.2373

.2373

.3421

.1952

.2216

157.500

.2208

.2257

.2050

.2374

.1905

.2453

.1835

.1854

.1880

.1887

.1952

.4118

161.000

.2043

166.000

.2229

180.000

.3906

.6087

.2795

.1463

.2008

.2457

.2170

.1906

.1711

.1802

.1841

.1854

.1926

.4040

197.000

.2947

.2069

.2167

.1763

.1854

.1848

.3891

210.000

220.000

.2830

232.000

.2147

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

PAGE 781

UPWT 1059 (IH4) T15 ALONE

EXTERNAL TANK

(MQ3TDC)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PL

X/LT .9250 .9350 .9370 .9750

THETA

123.000 .3787

151.000 .6064

180.000 .5745 .0241

210.000 .7807

UPWT 1059 (IH4) SBN16 A. ONE SOLID RCKT. BSTR.

(MQ3SEA) ( 20 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 1.200 ALPHA = .000

MACH ( 1 ) = 3.700 BETA ( 1 ) = -5.000 PINF = .13.77 Q(P51) = 1.2625 RN/L = 1.2000 CPSTG = 1.7839

## SECTION ( 1 ) SOLID RCKT. BSTR

## DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	2.3361		.3805	.4017		.4191					.0959		.0974		
180.000				.2847		.2827							.0981		
225.000										.0801			.0944		.1061
247.500											.0846		.0901	.0944	.1042
260.000								.1515							
270.000		.4354	.3597	.3570	.3597	.3971	.3375		.1289	.0993	.0887	.0865	.0877	.0932	.0840
315.000											.1073				

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9350	.9300	.9400	.9500	.9600	.9900
PSI												
90.000	.1138	.2351	.0801					.1966				.2865
180.000	.1184	.1794	.0697	.1400				.2705			.2436	.2207
210.000					.1602	.3028		.1884		.1830		
215.000							.1356		.1534		.1494	
225.000		.1219	.0784	.1344				.1669			.1736	
240.000								.1804			.1938	.2142
247.500	.1128											
270.000	.1165	.1149	.0697	.1315				.1827				.2179
315.000	.1073											

MACH ( 1 ) = 3.700 BETA ( 2 ) = .000 PINF = .13177 Q(P51) = 1.2625 RN/L = 1.2000 CPSTG = 1.7839

## SECTION ( 1 ) SOLID RCKT. BSTR

## DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	2.3480		.3890	.4050		.4209							.1097		
180.000				.4022		.4153							.1052		
225.000										.1012	.1185		.1223		.1192
247.500												.1162	.0990	.1021	.1045
260.000								.1727							
270.000		.4431	.3678	.3822	.3898	.4065	.3751		.1326	.1012	.1012	.0941	.0978	.1015	.1052
315.000												.0948			

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(MQ3SEA)

DEPENDENT VARIABLE PL

DEPENDENT VARIABLE PL

[illegible]

UPWT 1059 (IH4) SBN16 A. ONE SOLID RCKT. BSTR.

(MQ3SEA)

MACH ( 2 ) = 4.600 BETA ( 1 ) = .000 PINF = .66100-01 Q(PST) = .98320 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	1.8070		.2097	.2238		.2379							.0512		
180.000				.2553		.2684					.0675		.0398		
225.000										.0558			.0374		.0339
247.500												.0315	.0297	.0285	.0273
260.000								.1134							
270.000		.3070	.2402	.2526	.2622	.2844	.2399		.0855	.0628	.0574	.0261	.0256	.0250	.0244
315.000											.0238				
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900			
PSI															
90.000	.0604	.1762	.0733					.0788				.0881			
180.000	.0481	.0785	.0628	.0714				.1055			.1041	.1196			
210.000					.0788	.0975		.2537		.1522					
215.000							.0321		.0801		.0734				
225.000		.0750	.0628	.0742				.0801			.1041				
240.000								.0828			.0975	.1252			
247.500	.0267														
270.000	.0244	.0750	.0628	.0751				.0714				.1372			
315.000	.0238														

MACH ( 2 ) = 4.600 BETA ( 2 ) = 5.000 PINF = .66100-01 Q(PST) = .98320 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	1.8189		.2365	.2441		.2556							.0320		
180.000				.3827		.3875					.0892		.0681		
225.000										.0680			.0587		.0534
247.500												.0505	.0476	.0429	.0399
260.000								.1169							
270.000		.3105	.2471	.2588	.2643	.2861	.2334		.0855	.0611	.0587	.0370	.0358	.0358	.0341
315.000											.0329				
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900			
PSI															
90.000	.0385	.1675	.0558					.0760				.1038			
180.000	.0640	.0994	.0454	.0917				.1885			.2433	.2279			
210.000					.1083	1.0066		.2968		.1444					
215.000							.3717		.1270		.0882				
225.000		.0872	.0454	.0917				.1350			.1898				
240.000								.1243			.1885	.2001			

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) S8N16 A.ONE SOLID RCKT. BSTR.

(MQ3SEA)

MACH ( 2 ) = 4.600 BETA ( 2 ) = 5.000

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9350	.9300	.9400	.9500	.9600	.9900
PSI												
247.500	.0382											
270.000	.0341	.0628	.0454	.0741				.0713				.1593
315.000	.0329											

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UPWT 1059 (IH4) SBN16 ALONE SOLID RCKT. BSTR.

(MQ3SEB) ( 15 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0003 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 ALPHA = .000

MACH ( 1 ) = 3.700 BETA ( 1 ) = -5.000 PINF = .32910 Q(P51) = 3.1528 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) SOLID RCKT. BSTR

## DEPENDENT VARIABLE P.

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1110	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	5.8229		.9479	1.0093		1.0487					.2379		.2734		
180.000				.7535		.7679							.2740		
225.000										.1954			.2618		.2688
247.500											.2392		.2548	.2641	.2682
260.000								.3699							
270.000		1.0850	.9366	.9690	.9924	.9927	.9231		.2966	.2442	.2385	.2467	.2490	.2577	.2641
315.000											.3042				

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9230	.9300	.9400	.9500	.9600	.9900
PSI												
90.000	.3168	.5356	.1518					.6589				.7081
180.000	.3297	.9019	.1797	.3146				.6917			.6756	.5624
210.000					.4062	1.2472		.6341		.4732		
215.000						.7316			.4477			
225.000		.4292	.1692	.2998				.5912			.4102	
240.000								.5362			.5952	.5689
247.500	.3164										.5872	
270.000	.3181	.4013	.1431	.3027				.5735				.5281
315.000	.3048											

MACH ( 1 ) = 3.700 BETA ( 2 ) = .000 PINF = .32910 Q(P51) = 3.1528 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) SOLID RCKT. BSTR

## DEPENDENT VARIABLE P.

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1110	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	5.8417		.9519	1.0050		1.0445							.2947		
180.000				1.0535		1.0789					.2875		.3036		
225.000										.2451			.2884		.2990
247.500											.2914		.2849	.2920	.2984
260.000								.4051							
270.000		1.0884	.9566	1.0007	1.0255	1.0219	.9510		.3060	.2521	.2575	.2727	.2820	.2914	.2978
315.000												.2686			



TABULATED SOURCE DATA - 1H4

UPWT 1059 (IH4) S8N16 AL ONE SOLID RCKT. BSTR.

(MQ3SEB)

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE P.

[illegible]

MACH ( 1 ) = 3.700    BETA ( 3 ) = 5.000    PINF = .32910    Q(PSI) = 3.1528    RN/L = 3.0000    CPSTG = 1.7839

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1110	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	5.8041		.9388	.9698		1.0038							.2421		
180.000				1.4220		1.4265					.3915		.3648		
225.000										.3175			.3038		.2866
247.500												.2801	.2570	.2458	.2398
260.000								.4135							
270.000		1.0833	.9518	.9966	1.0151	1.0150	.9436		.3036	.2477	.2544	.2304	.2161	.2209	.2298
315.000												.2156			
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9230	.9300	.9400	.9500	.9600	.9900			
PSI															
90.000	.2856	.5147	.1483					.5684					.6157		
180.000	.3417	.4414	.1343	.3690				.9786			1.0430		.8141		
210.000					.4933	2.7339		1.0378		.5630					
215.000							1.1437		.4424						
225.000		.3576	.1308	.3310				.8955			.3271				
240.000								.7587			.6971				
247.500	.2789										.7789		.7167		
270.000	.2854	.3803	.1326	.3097				.5953							
315.000	.2783											.6240			

UPWT 1059 (IH4) SBN16 AL JNE

SOLID RCKT. BSTR.

(MQ3SEB)

MACH ( 1 ) = 3.700 BETA ( 4 ) = 10.000 PINF = .32910 Q(PSI) = 3.1528 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE P.

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1110	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	5.7488		.9271	.9296		.9554							.1841		
180.000				1.8627		1.8529					.5494		.5030		
225.000										.4306			.3734		.3704
247.500											.2997		.2646	.2450	.2313
260.000															
270.000		1.0980	.9546	.9973	1.0137	1.0109	.9337	.4271	.2981	.2510	.2645	.2004	.1659	.1486	.1522
315.000											.1605				
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9230	.9300	.9400	.9500	.9600	.9900			
PSI															
90.000	.2171	.4167	.1116					.3181				.4053			
180.000	.4786	.6137	.1865	.4758				1.3285			1.3805	1.1148			
210.000					.6167	3.4186		1.3376							
215.000							1.2153		.4696	.7559					
225.000		.4254	.1130	.3802				.9432			.3465				
240.000								.7010			.8121				
247.500	.2271										.7679	.7623			
270.000	.2253	.2336	.0941	.2300				.3181				.7902			
315.000	.2242														

MACH ( 2 ) = 4.600 BETA ( 1 ) = -5.000 PINF = .16530 Q(PSI) = 2.4534 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE P.

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1110	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	4.5753		.5978	.6487		.6901							.1147		
180.000				.4673		.4873					.1316		.1382		
225.000										.1012			.1271		.1207
247.500												.1190	.1173	.1161	.1161
260.000								.2477							
270.000		.7694	.6352	.6697	.6882	.6961	.6430		.1884	.1378	.1268	.1242	.1231	.1236	.1318
315.000											.1654				
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9230	.9300	.9400	.9500	.9600	.9900			
PSI															
90.000	.1407	.3245	.0872					.2636				.4037			
180.000	.1660	.3158	.0837	.1671				.3383			.3503	.3035			
210.000					.1992	.5187		.3316		.2607					
215.000							.2734		.2219		.2112				
225.000		.1762	.0960	.1596				.2487			.2714				
240.000								.2661			.3088	.3295			

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) SBN16 ALONE SOLID RCKT. BSTR.

(MQ3SEB)

MACH ( 2 ) = 4.600 BETA ( 1 ) = -5.000

SECTION ( 1 ) SOLID RCKT. BSTR DEPENDENT VARIABLE P.

X/LSRB .7000 .7800 .8000 .9000 .9100 .9200 .9250 .9300 .9400 .9500 .9600 .9900

PSI												
247.500	.1550											
270.000	.1567	.1500	.0715	.1550			.2738				.3332	
315.000	.1498											

MACH ( 2 ) = 4.600 BETA ( 2 ) = .000 PINF = .16530 Q(PSI) = 2.4534 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR DEPENDENT VARIABLE P.

X/LSRB .0000 .0040 .0250 .0500 .0750 .1000 .1110 .1150 .1300 .1500 .2000 .3000 .4000 .5000 .6000

PSI														
90.000	4.6067		.6119	.6567		.6908							.1285	
180.000			.7161	.7423									.1345	
225.000									.1342	.1587			.1303	.1333
247.500											.1225	.1273	.1303	.1327
260.000							.2806							
270.000		.7808	.6547	.6968	.7202	.7285	.6714	.1987	.1429	.1360	.1237	.1261	.1297	.1321
315.000											.1207			

X/LSRB .7000 .7800 .8000 .9000 .9100 .9200 .9250 .9300 .9400 .9500 .9600 .9900

PSI														
90.000	.1587	.3433	.1028				.2728					.4231		
180.000	.1693	.1934	.0889	.2051			.2921				.4354	.4621		
210.000					.2157	1.5250	.6940		.3014					
215.000														
225.000		.1987	.0906	.2051			.2880	.2934		.2010	.5506			
240.000							.2800			.4233	.5094			
247.500	.1657													
270.000	.1675	.2004	.0837	.1976			.2746				.3479			
315.000	.1579													

MACH ( 2 ) = 4.600 BETA ( 3 ) = 5.000 PINF = .16530 Q(PSI) = 2.4534 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR DEPENDENT VARIABLE P.

X/LSRB .0000 .0040 .0250 .0500 .0750 .1000 .1110 .1150 .1300 .1500 .2000 .3000 .4000 .5000 .6000

PSI														
90.000	4.5650		.6072	.6326		.6630							.1001	
180.000			1.0372			1.0365							.1869	
225.000									.1814	.2263			.1584	.1442
247.500											.1382	.1287	.1192	.1139
260.000							.2879							
270.000		.7833	.6612	.7039	.7225	.7292	.6734	.1971	.1431	.1407	.1086	.0997	.0949	.1062

UPWT 1059 (IH4) S8N16 ALONE SOLID RCKT. BSTR.

(MQ35EB)

MACH ( 2 ) = 4.600      BETA ( 3 ) = 5.000

SECTION (1) SOLID RCKT. BSTR

DEPENDENT VARIABLE P.

[illegible]

MACH (2) = 4.600    BETA (4) = 10.000    PINF = .16530    Q(PSI) = 2.4534    RN/L = 3.0000    CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE P.

[illegible]

DATE 20 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) SBN16 ALONE SOLID RCKT. BSTR.

(MQ3SEC) ( 15 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 5.000 ALPHA = .000

MACH ( 1 ) = 3.700 BETA ( 1 ) = .000 PINF = .54830 Q(PSI) = 5.2588 RN/L = 5.0000 CPSTG = 1.7839

## SECTION ( 1 ) SOLID RCKT. BSTR

## DEPENDENT VARIABLE P.

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1110	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	9.7221		1.5622	1.6447		1.7115							.4808		
180.000				1.7344		1.7755					.4702		.4960		
225.000										.4194			.4878		.5083
247.500												.4655	.4831	.4989	.5088
260.000								.6700							
270.000		1.8182	1.5906	1.6680	1.7084	1.7141	1.5938		.4960	.4246	.4367	.4643	.4749	.4989	.4954
315.000											.4567				
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900			
PSI															
90.000	.5512	1.1987	.2906					1.0458				1.2657			
180.000	.6183	.8475	.2593	.5559				1.2517			1.2959	1.1120			
210.000					.7816	3.4486		1.7031		.8417					
215.000							2.1843		.8430		.6533				
225.000		.9641	.2698	.5393				1.3818			1.2387				
240.000								1.2387			1.2946	1.2381			
247.500	.5533														
270.000	.4971	1.4018	.2506	.5448				1.0485				.9173			
315.000	.4766														

MACH ( 1 ) = 3.700 BETA ( 2 ) = 5.000 PINF = .54830 Q(PSI) = 5.2588 RN/L = 5.0000 CPSTG = 1.7839

## SECTION ( 1 ) SOLID RCKT. BSTR

## DEPENDENT VARIABLE P.

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1110	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	9.6955		1.5386	1.5896		1.6405							.3778		
180.000				2.3699		2.3621					.6461		.6156		
225.000										.5400			.5386		.5096
247.500												.4823	.4592	.4397	.4260
260.000								.6798							
270.000		1.8087	1.5873	1.6681	1.7000	1.7011	1.5936		.4893	.4177	.4253	.4118	.3869	.3786	.3745
315.000											.3739				

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UPWT 1059 (IH4) S8N16 AL)NE

SOLID RCKT. BSTR.

(MQ3SEC)

MACH ( 1 ) = 3.700 BETA ( 2 ) = 5.000

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE P.

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
PSI												
90.000	.4774	.7655	.2324					.8836				.9903
180.000	.6228	.7270	.1957	.6045				1.6777			1.6907	1.3529
210.000					.8340	4.5782		1.6972		.9585		
215.000							1.9433		.7042		.5435	
225.000		.5977	.1730	.5406				1.4462			1.1705	
240.000								1.2719			1.2615	1.2011
247.500	.5327											
270.000	.5037	.6903	.1852	.4951				.9708				1.0308
315.000	.4871											

MACH ( 2 ) = 4.600 BETA ( 1 ) = .000 PINF = .27610 Q(PSI) = 4.0883 RN/L = 5.0000 CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE P.

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1110	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	7.6150		1.0172	1.0894		1.1489									.2320
180.000				1.1908		1.2358					.2577				.2622
225.000										.2277					.2468
247.500												.2437		.2425	.2449
260.000								.4572					.2431	.2345	.2332
270.000		1.2779	1.0899	1.1655	1.2071	1.2079	1.1243		.3147	.2382	.2308	.2363	.2351		
315.000											.2264				

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
PSI												
90.000	.2829	.5981	.1565					.5229				.7483
180.000	.3363	.3755	.1269	.2819				.7277			.8585	.6973
210.000					.4006	2.7430		1.1471		.4820		
215.000							1.5945		.5261		.3712	
225.000		.3825	.1234	.2837				.8986			.8332	
240.000								.7036			.8478	.8011
247.500	.3141											
270.000	.3111	.4816	.1234	.2884				.5730				.5777
315.000	.2534											

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) SBN16 ALCNE SOLID RCKT. BSTR. (MQ3SEC)

MACH (2) = 4.600 BETA (2) = 5.000 PINF = .27600 Q(PSI) = 4.0883 RN/L = 5.0000 CPSTG = 1.8033

SECTION (1) SOLID RCKT. BSTR DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	7.6696		1.0220	1.0663		1.1149							.1788		
180.000				1.7254		1.7143							.3636		
225.000										.3095			.3512		.3468
247.500												.2687	.2488	.2457	.2426
260.000								.4659							
270.000		1.2864	1.1010	1.1804	1.2091	1.2062	1.1209		.3095	.2382	.2326	.2147	.1961	.1849	.1812
315.000												.1774			
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900			
PSI															
90.000	.2209	.5024	.1304					.4270				.5521			
180.000	.3543	.4155	.1200	.3344				.9466			1.1224	.8930			
210.000					.4620	3.3465		1.2147		.5474					
215.000							1.3227		.4473		.3111				
225.000		.3286	.1113	.3011				.9159			.7437				
240.000								.7050			.8065	.7439			
247.500	.2382														
270.000	.2445	.3008	.1095	.2529				.5095							
315.000	.2382											.6531			

UPWT 1059 (IH4) S8N16 ALCNE SOLID RCKT. BSTR.

(MQ3SEF) ( 19 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 3.000 ALPHA = .000

MACH ( 1 ) = 3.700 BETA ( 1 ) = -5.000 PINF = .3290+ Q(P51) = 3.1532 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) SOLID RCKT. BSTR

## DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
.000		.8307	.7009	.7140	.7278	.7280	.6465		.2351	.1916	.2138	.2311	.2399	.2493	.2740
45.000												.2300			
180.000	5.8400		1.3255	1.4020		1.4232							.3455		
270.000				1.0600		1.0841					.2821		.2523		
315.000										.1916			.2388		.2347
337.500												.2335	.2335	.2329	.2323
350.000								.3117							

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
PSI												
.000	.3027	.9404	.1463	.2893				.6296				.5508
45.000	.2833											
180.000	.3283	.6078	.1498					.8271				.9207
270.000	.3033	.3744	.1393	.3171				.7601			.8057	.6490
300.000					.3955	.9933		.6180	.3325	.3968		
305.000							.4565				.2775	
315.000		.3588	.1951	.3032				.4571			.3955	
330.000								.4933			.4544	.4478
337.500	.2886											

MACH ( 1 ) = 3.700 BETA ( 2 ) = .000 PINF = .3290+ Q(P51) = 3.1532 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) SOLID RCKT. BSTR

## DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
.000		1.0884	.9566	1.0007	1.0255	1.0219	.9510		.3060	.2521	.2575	.2727	.2820	.2914	.2978
45.000												.2686			
180.000	5.8417		.9519	1.0050		1.0445							.2947		
270.000				1.0535		1.0789					.2875		.3036		
315.000										.2451			.2884		.2990
337.500												.2914	.2849	.2920	.2984
350.000								.4051							



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UPWT 1059 (IH4) S8N16 ALCNE SOLID RCKT. BSTR.

(MQ3SEF)

MACH ( 1 ) = 3.700 BETA ( 2 ) = .000

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
PSI												
.000	.3498	.4746	.1356	.3369				.6423				.5497
45.000	.3252											
180.000	.3603	.5302	.1599					.6867				.7904
270.000	.3737	.3912	.1460	.3443				.8434			.8782	.6839
300.000					.4753	2.5375		1.0092		.5087		
305.000							1.4332		.5315		.3936	
315.000		.4016	.1391	.3369				.9371			.7858	
330.000								.7925			.8354	.7580
337.500	.3585											

MACH ( 1 ) = 3.700 BETA ( 3 ) = 5.000 PINF = .329C4 Q(PSI) = 3.1532 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
.000		1.3905	1.2683	1.3380	1.3523	1.3444	1.2591		.4152	.3507	.3444	.3220	.3227	.3227	.3214
45.000												.3220			
180.000	5.8280		.7253	.7456		.7636							.2600		
270.000				1.0287		1.0470					.2731		.2771		
315.000										.3123			.3239		.3227
337.500												.3227	.3220	.3220	.3220
350.000								.5147							

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
PSI												
.000	.3233	.4641	.1256	.3672				.7566				.5563
45.000	.3220											
180.000	.3073	.9805	.1797					.6240				.6880
270.000	.3251	.3960	.1378	.3143				.7417			.7216	.5610
300.000					.4645	2.6220		.9853		.5101		
305.000							1.9600		.7390		.5101	
315.000		.3890	.1308	.3273				1.1041			.9679	
330.000								.8595			1.0001	.9105
337.500	.3214											

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UPWT 1059 (IH4) SBN16 ALCNE

SOLID RCKT. BSTR.

(MQ3SEF)

MACH (1) = 3.700 BETA (4) = 10.000 PINF = .329C4 Q(PSI) = 3.1532 RN/L = 3.0000 CPSTG = 1.7839

SECTION (1) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
.000		1.7865	1.7065	1.7690	1.7696	1.7523	1.6551		.5799	.5103	.4872	.4709	.4393	.4393	.4311
45.000												.3749			
180.000	5.7068		.5601	.5731		.5564							.2570		
270.000				.9911		.9979							.2094		
315.000										.4006			.3416		.3305
337.500												.4434	.4317	.4094	.4065
350.000								.6635							

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
PSI												
.000	.4311	1.1669	.2926	.4645				.9541				.5582
45.000	.2925											
180.000	.2392	.7750	.1463					.4525				.7000
270.000	.1930	.3762	.1167	.2420				.3449			.4011	.4015
300.000					.3971	2.3905		.9773		.5482		
305.000							2.4230		.9960		.6377	
315.000		.8952	.1759	.3227				1.1549			1.1093	
330.000								.9158			1.1289	1.1339
337.500	.4013											

MACH (1) = 3.700 BETA (5) = 20.000 PINF = .329C4 Q(PSI) = 3.1532 RN/L = 3.0000 CPSTG = 1.7839

SECTION (1) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
.000		2.9368	2.8061	2.8091	2.7892	2.7661	2.6330		1.0628	1.0014	.9547	.8980	.8794	.9218	.9288
45.000												.6250			
180.000	5.1402		.3879	.3812		.3536							.1274		
270.000				.9194		.8898							.1632		
315.000										.6629	.2450		.5559		.5536
337.500												.7923	.7859	.7847	.8248
350.000								1.1396							

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
PSI												
.000	.9305	2.1398	.4484	.9671				2.0439				.5856
45.000	.5361											
180.000	.1262	.4152	.0960					.2729				.3582
270.000	.1487	.3856	.0890	.1606				.3173			.3628	.4260
300.000					.6828	3.4779		1.4267		.8943		
305.000							4.2257		2.0588		1.2238	

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) SBN16 ALCNE SOLID RCKT. BSTR.

(MQ3SEF)

MACH ( 1 ) = 3.700 BETA ( 5 ) = 20.000

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB .7000 .7800 .8000 .9000 .9100 .9200 .9250 .9300 .9400 .9500 .9600 .9900

PSI												
315.000		1.6380	.2896	.5745			2.0966			1.9821		
330.000							1.7025			2.0601	2.1295	
337.500	.8213											

MACH ( 1 ) = 3.700 BETA ( 6 ) = 40.000 PINF = .32904 Q(PSI) = 3.1532 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB .0000 .0040 .0250 .0500 .0750 .1000 .1100 .1150 .1300 .1500 .2000 .3000 .4000 .5000 .6000

PSI															
.000		5.2283	5.0073	4.9650	4.9396	4.8937	4.4927		2.6409	2.6084	2.7496	2.8286	2.6635	2.6981	2.6822
45.000												1.7475			
180.000	2.9259		.2389	.1795		.1733							.0861		
270.000				.8315		.7854							.2549		
315.000									1.4752		.2963		1.4944		1.5120
337.500												2.3565	2.3150	2.2594	2.3014
350.000							2.1374								

X/LSRB .7000 .7800 .8000 .9000 .9100 .9200 .9250 .9300 .9400 .9500 .9600 .9900

PSI												
.000	2.6487	5.1020	.8649	2.5833			4.3821				.6232	
45.000	1.4150											
180.000	.1480	.2750	.1775			.1762					.1373	
270.000	.2638	.6056	.1392	.3135		.4669				.6047	.8505	
300.000					1.7993	4.6972	2.1414		1.7889			
305.000						7.0800		4.8897		2.7150		
315.000		3.0522	.6927	1.4092			4.1990			3.8492		
330.000							3.6944			4.2654	4.3076	
337.500	2.2560											

MACH ( 1 ) = 3.700 BETA ( 7 ) = 48.000 PINF = .32904 Q(PSI) = 3.1532 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB .0000 .0040 .0250 .0500 .0750 .1000 .1100 .1150 .1300 .1500 .2000 .3000 .4000 .5000 .6000

PSI															
.000		5.9348	5.7378	5.6831	5.6005	5.3665	4.7569		3.6871	3.6376	3.7833	3.7026	3.4750	3.5420	3.5261
45.000												2.2617			
180.000	2.1698		.1858	.1803		.1226							.1681		
270.000				.8313		.7417							.3330		
315.000									1.9309		.3256		1.9008		1.9410
337.500												3.0630	2.9966	2.9546	2.9994



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UPWT 1059 (IH4) SBN16 ALCNE SOLID RCKT. BSTR. (MQ3SEF)  
 MACH ( 2 ) = 4.600 BETA ( 2 ) = .000 PINF = .165E7 Q(PSI) = 2.4545 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
.000		.7808	.6547	.6968	.7202	.7285	.6744		.1987	.1429	.1360	.1237	.1261	.1297	.1321
45.000												.1207			
180.000	4.6067		.6119	.6567		.6908							.1285		
270.000			.7161			.7423							.1345		
315.000										.1342			.1303		.1333
337.500												.1225	.1273	.1303	.1327
350.000								.2806							
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900			
PSI															
.000	.1675	.2004	.0837	.1976				.2746				.3479			
45.000	.1579														
180.000	.1587	.3433	.1028					.2728				.4231			
270.000	.1693	.1934	.0889	.2051				.2921				.4621			
300.000					.2157	1.5250		.6940		.3014					
305.000							.9914								
315.000		.1987	.0906	.2051				.2880	.2934		.2010				
330.000								.2800			.5506				
337.500	.1657										.4233	.5094			

MACH ( 2 ) = 4.600 BETA ( 3 ) = 5.000 PINF = .165E7 Q(PSI) = 2.4545 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
.000		1.0253	.9325	1.0059	1.0138	.9996	.9335		.2752	.2142	.1975	.1970	.1877	.1837	.1796
45.000												.1674			
180.000	4.5804		.4474	.4590		.4719							.1142		
270.000			.6887			.7087							.1319		
315.000										.1724	.1496		.1656		.1552
337.500												.1912	.1842	.1778	.1744
350.000								.3675							
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900			
PSI															
.000	.1825	.2804	.0784	.2103				.4206				.3492			
45.000	.1511														
180.000	.1314	.4424	.0906					.3038				.3891			
270.000	.1505	.1515	.0749	.1566				.2808			.4064	.3094			
300.000					.2340	1.9847		.6444		.2727					
305.000							1.3954		.4813		.2955				

UPWT 1059 (IH4) S8N16 ALONE SOLID RCKT. BSTR.

(MQ3SEF)

MACH ( 2 ) = 4.600 BETA ( 3 ) = 5.000

SECTION ( 1 ) SOLID RCKT. BSTR DEPENDENT VARIABLE P.

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
PSI												
315.000		.2038	.0749	.1723				.6016			.6511	
330.000								.4733			.6137	.6253
337.500	.1744											

MACH ( 2 ) = 4.600 BETA ( 4 ) = 10.000 PINF = .16597 Q(PSI) = 2.4545 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR DEPENDENT VARIABLE P.

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1150	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
.000		1.3342	1.2879	1.3465	1.3406	1.3240	1.2472		.4023	.3326	.3023	.2839	.2581	.2569	.2546
45.000												.2176			
180.000	4.4916		.3500	.3519		.3348							.0929		
270.000				.6642		.6690							.0915		
315.000										.2386			.1901		.1801
337.500											.2622		.2417	.2341	.2341
350.000							.4720								

X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900
PSI												
.000	.2575	.4232	.1010	.2921				.6175				.3542
45.000	.1719											
180.000	.1189	.4998	.0923					.1771				.2967
270.000	.0991	.1062	.0592	.1242				.1885			.2273	.2179
300.000					.2353	1.8052		.7728		.3837		
305.000							1.8117		.6939		.4359	
315.000		.2403	.0766	.1901				.7260			.8410	
330.000								.5843			.8249	.8716
337.500	.2329											

MACH ( 2 ) = 4.600 BETA ( 5 ) = 20.000 PINF = .16597 Q(PSI) = 2.4545 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR DEPENDENT VARIABLE P.

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1150	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
.000		2.2336	2.1570	2.1564	2.1427	2.1176	2.0135		.7816	.7048	.6524	.6273	.6385	.6795	.6895
45.000												.4163			
180.000	3.9097		.1991	.1808		.1549							.0403		
270.000				.6104		.5883							.0879		
315.000										.4449			.3723		.3993
337.500											.5423	.5605	.5804	.5992	

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH4) SBN16 AL JNE SOLID RCKT. BSTR.

(MQ3SEF)

MACH ( 2 ) = 4.600 BETA ( 5 ) = 20.000

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE P.

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
350.000								.8444							
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900			
PSI															
.000	.6907	1.5578	.3803	.7068				1.5351				.3641			
45.000	.4022														
180.000	.0438	.2983	.0628					.1019				.1019			
270.000	.0844	.1326	.0541	.0917				.2313			.2834	.2844			
300.000					.4733	3.0656		1.2316		.6885					
305.000							3.4193		1.4969		.9252				
315.000		.8950	.1814	.4057				1.6478			1.5984				
330.000								1.2862			1.6322	1.7853			
337.500	.5980														

MACH ( 2 ) = 4.600 BETA ( 6 ) = 40.000 PINF = .16567 Q(PSI) = 2.4545 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE PL

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
.000		3.8550	3.7111	3.7228	3.7665	3.7543	3.4830		1.9572	1.9264	2.0883	2.1636	2.0371	2.0575	2.0513
45.000												1.3084			
180.000	2.1056		.1208	.1004		.0905							.0763		
270.000				.5480		.5273					.1952		.1731		
315.000										1.0560			1.0979		1.1172
337.500												1.7845	1.7460	1.7079	1.7408
350.000								1.6738							
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900			
PSI															
.000	2.0331	4.0735	.6693	1.8148				3.5271				.3879			
45.000	1.1001														
180.000	.0450	.2045	.1153					.1123				.0872			
270.000	.1813	.4387	.1031	.2070				.3280			.4110	.6636			
300.000					1.2511	3.7003		1.6998		1.2784					
305.000							5.6210		3.7978		2.2799				
315.000		2.4555	.4981	1.0244				3.2880			3.1306				
330.000								2.8236			3.6600	3.5216			
337.500	1.7153														

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(MQ3SEF)

DEPENDENT VARIABLE PL

[illegible]





UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. FUS.

(AQ3BAA)

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
130.000									.9617	.9517		.9473			
135.000		1.0771			.9273										
139.600									.9639						
144.000												.9569			
155.000	.9796														
180.000	.9668	.8561			1.0045										

PHI  
130.000  
135.000  
139.600  
144.000  
155.000  
180.000

X/LB 1.0250 1.0500

PHI

.000 .5061 .6958

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = .48020 Q(P51) = 1.8721 RN/L = 1.2000 CPSTG = 1.7063

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	.9034	.9102	1.0347	1.3009		.9422	1.0846	3.4302		.7726					
10.000								1.3872							
20.000								.9649							
24.500								1.0157							
39.000								1.0174							
163.000														.9656	
174.000												.9447			
180.000	.9034				.9187		.9254	.9560	.9394	.9190		.9405		.9450	

PHI  
.000  
10.000  
20.000  
24.500  
39.000  
163.000  
174.000  
180.000

X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8000 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI

.000	.9672	.8473	.6427	.8082	1.0332	2.2493			.3979		.2885	.3212			
23.000		.7699													
24.000	.8736														
31.500	.8116														
33.100		.7358													
35.000	.7745														
40.000	.7211	.6926													
45.000		.6655													
50.000	.9147														
51.600													.9236		
57.000		.8197													
60.900		.7809													
65.000		.7590													
69.000												.9302			

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH-4) MATED/ALONE RATIO,ORB. FUS.

(AQ3BAA)

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
69.000		.7455													
79.300					.8683										
95.500					.8714		1.0086								
95.700		.9339													
96.300	1.1004														
103.000					.8776										
105.000															.8600
112.600					.8804										
117.500												.9653		.9519	
120.800									.9648						
127.900						.9983									
129.500							.9335								
130.000									.9269	.9753		.9271			
135.000		1.0167			.8047										
139.600									.9729						
144.000												.9946			
155.000	1.0010														
180.000	.9696	1.0043			.8975										
X/LB	1.0250	1.0500													

PHI

.000 .4661 .6003

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000 PINF = .26525 Q(PSI) = 1.6136 RN/L = 1.2100 CPSTG = 1.7529

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	.9562	1.0261	1.0649	1.2181		1.7595	2.1435	6.6851		.7964					
10.000								2.1856							
20.000								1.8827							
24.500								1.8304							
39.000								1.1856							
163.000														.9399	
174.000											.9300				
180.000	.9562				.9170			.9261	.9392	.9373	.9237		.9409		.9485
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	1.4882	1.3289	1.1873	.9751	.9133		2.8268				.4784		.3337	.3650	
23.000		1.1598													

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TABULATED SOURCE DATA - 1H4

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(AQ3BAA)

MACH (2) = 2.950    ALPHA (2) = 5.000    PINF = .26525    Q(PSI) = 1.6156    RN/L = 1.2100    CPSTG = 1.7529

DEPENDENT VARIABLE PI/PU

[illegible]

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. FUS.

(AQ3BAA)

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB 1.0250 1.0500

PHI

.000 .3576 .5144

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .13175 Q(PSI) = 1.2629 RN/L = 1.2000 CPSTG = 1.7839

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB .0000 .0050 .0200 .0400 .0500 .0600 .0800 .1000 .1250 .1500 .1600 .1650 .1700 .1750 .1800

PHI

.000 1.0535 1.1083 1.5234 1.8033 2.6923 1.4665 13.3714 1.4441

10.000

3.0358

20.000

2.8615

24.500

2.6428

39.000

.8099

163.000

.5037

174.000

180.000

1.0535 .9763 .9787 1.1169 2.2249 1.2022 .6422 .9913 .2673

X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8000 .8050 .8290 .8520 .9500 .9630 .9750 1.0000 1.0145

PHI

.000 2.2393 1.7227 2.0269 1.6258 1.3868 4.3931 .9788 .6427 .7360

23.000

6.9114

24.000

1.7984

31.500

1.6989

33.100

2.1912

35.000

2.0643

40.000

2.6802

45.000

2.5775

50.000

1.6017

51.600

.7027

57.000

1.4448

60.900

1.2881

65.000

1.2298

68.000

2.2613

69.000

1.0197

79.300

.9964

95.500

1.1707

1.0473

95.700

.7880

96.300

.9163

103.000

1.1406

105.000

3.6857

112.600

1.1319

117.500

1.2398

.2034

120.800

.5166

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UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. FUS.

(AQ3BAA)

MACH (3) = 3.700 ALPHA (1) = -5.000

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
127.900						1.6138									
129.500								.7136							
130.000									.5836	.7655		4.1316			
135.000		1.0165			1.1779										
139.600									.4378						
144.000												2.2535			
155.000	.3652														
180.000	.3460	1.0515			13.6894										
X/LB	1.0250	1.0500													
PHI															
.000	.7015	.7543													

MACH (3) = 3.700 ALPHA (2) = .000 PINF = .13175 Q(PSI) = 1.2629 RN/L = 1.2000 CPSTG = 1.7839

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	.9971	1.1270	1.1816	1.2357		1.7014	1.5756	7.6288		1.0612					
10.000								2.0038							
20.000								1.9253							
24.500								1.8343							
39.000								1.1557							
163.000														.9544	
174.000												.9437			
180.000	.9971				.9247			.9392	.9552	.9291	.9395	.9437	.9618		.9642
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	1.5854	1.3157	1.4992	1.4059	1.1545		3.1443				.7492		.5523	.6979	
23.000		1.4701													
24.000	1.3148														
31.500	1.1638														
33.100		1.4623													
35.000	1.1592														
40.000	1.3770	1.4971													
45.000		1.4637													
50.000	1.3478														
51.600													.7311		
57.000		1.1269													
60.900		1.1446													

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. FUS.

(AQ3BAA)

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE P1/PU

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
65.000		1.1453													
68.000													.6850		
69.000		1.1567													
79.300					.8578										
95.500					.9085		.8712								
95.700		1.1945													
96.300	1.0698														
103.000					1.0116										
105.000															.8701
112.600					1.0321										
117.500												.8027		.7840	
120.800									1.0745						
127.900						3.0425									
129.500								2.0569							
130.000															
135.000		.7181			1.0058				1.2363	.9287		.9095			
139.600									.8946						
144.000													1.1496		
155.000	.9482														
180.000	.9361	.9247			.8161										
X/LB	1.0250	1.0500													
PHI															
.000	.6551	.7809													

MACH ( 4 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .66200-01 Q(PSI) = .98085 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE P1/PU

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	1.1251	1.2033	1.6842	1.9357		3.0023	3.1264	15.1600		1.7070					
10.000								4.9263							
20.000								3.3137							
24.500								3.0919							
39.000								1.5285							
163.000														1.0985	
174.000															
180.000	1.1251				1.0400			1.0355	1.0556	1.0325	1.0809	1.0810	1.1115		1.0573



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(AQ3BAA)

DEPENDENT VARIABLE PI/PU

[illegible]

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. FUS.

(AQ3BAA)

MACH (4) = 4.600 ALPHA (2) = .000 PINF = .66200-01 Q(PSI) = .98085 RN/L = 1.2000 CPSTG = 1.8033

## SECTION ( 1 ) ORBITER FUSELAGE

## DEPENDENT VARIABLE PI/PU

[illegible]

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. FUS.

(AQ3BAA)

MACH ( 4 ) = 4.600 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE P1/PU

X/LB 1.0250 1.0500

PHI  
.000 .3978 .4249

UPWT 1059 (IH-4) MATED/ALONE RATIO.ORB. UPR WING

(AQ3UAA) ( 19 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 1.200 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = .48020 Q(PSt) = 1.8721 RN/L = 1.2000 CPSTG = 1.7063

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.8830		
.200	.7712	.7946	.8769
.600	.8432	.8534	
.800		.8500	
.900		.9785	.6816
.950		.8539	

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = .48020 Q(PSt) = 1.8721 RN/L = 1.2000 CPSTG = 1.7063

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	1.0070		
.200	.9340	1.0051	.9646
.600	.8140	.8357	
.800		.8406	
.900		1.0018	.7479
.950		.8741	

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000 PINF = .26525 Q(PSt) = 1.6156 RN/L = 1.2100 CPSTG = 1.7529

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.8529		
.200	.8954	.8648	.8978
.600	.8706	.8647	
.800		.8775	
.900		1.0283	.9672
.950		.9368	

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UPWT 1059 (IH-4) MATED/ALONE RATIO.ORB. UPR WING

(AQ3UAA)

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = .26525 Q(PSI) = 1.6156 RN/L = 1.2100 CPSTG = 1.7529

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	1.0166		
.200	.9542	.9287	.8886
.600	.7523	.7900	
.800		.7724	
.900	1.0016	.8741	
.950	.8515		

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .13175 Q(PSI) = 1.2629 RN/L = 1.2000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.3427		
.200	.4072	.3634	.3625
.600	2.7564	1.1873	
.800		2.8477	
.900		.6078	9.3499
.950		3.2858	

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .13175 Q(PSI) = 1.2629 RN/L = 1.2000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.7731		
.200	.8571	.8314	.8267
.600	.8941	.9831	
.800		.8557	
.900		.9872	1.0739
.950		1.0856	

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TABULATED SOURCE DATA - 1H4

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UPWT 1059 (1H-4) MATED/ALONE RATIO, ORB. UPR WING

(AQ3UAA)

MACH (4) = 4.600 ALPHA (1) = -5.000 PINF = .66200-01 Q(PSI) = .98085 RN/L = 1.2000 CPSTG = 1.8033

SECTION (1) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.8533		
.200	.9037	.7869	.7567
.600	1.3934	1.1995	
.800		1.4335	
.900		1.1284	.9774
.950		1.2469	

MACH (4) = 4.600 ALPHA (2) = .000 PINF = .66200-01 Q(PSI) = .98085 RN/L = 1.2000 CPSTG = 1.8033

SECTION (1) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.7712		
.200	.7239	.6955	.7656
.600	.7186	.8256	
.800		.9698	
.900		1.0033	.9737
.950		.9895	

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH-4) MATED/ALONE RATIO.ORB. LWR WING

(AQ3LAA) ( 19 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 1.200 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = .48020 Q(PSI) = 1.8721 RN/L = 1.2000 CPSTG = 1.7063

## SECTION ( 1 ) ORB. LOWER WING

## DEPENDENT VARIABLE PI/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						.9405		.9465		.8805
.001		.7940	.9778		.9600	.9698	.9450	.8940		
.002						1.0075		.8906		
.003						.9144		.9445		
.004						.9798		.9609		
.005						.9891		.8867		
.025				1.0966	1.0540		.9666			
.045				1.0847						
.100						.9579		.9579	.9566	
.153	.8353									
.177					.9599					
.200				.8311						
.299	.9187									
.302				1.0447			1.1338			
.428						1.6011				
.444	.8830									
.487					2.0619					
.559				2.2092						
.600						2.2045				
.700						2.5615				
.736	2.3920									
.800						1.9831				
.850						1.5160				
.900				1.1329		1.3815	2.1003	1.5601		

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = .48020 Q(PSI) = 1.8721 RN/L = 1.2000 CPSTG = 1.7063

## SECTION ( 1 ) ORB. LOWER WING

## DEPENDENT VARIABLE PI/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						.9318		.9906		.9049
.001		.6806	.9946		.9571	.8813	.9730	.9442		
.002						.8564		.9263		
.003						.9837		.9976		
.004						.9034		.9559		
.005						.8658		.9363		

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. LWR WING

(AQ3LAA)

MACH (1) = 2.360 ALPHA (2) = 5.000

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE P1/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.025				.8600	.8620		.9292			
.045				.8577						
.100						.8427		.9314	.9606	
.153	.6820									
.177					.9674					
.200				.9005						
.299	.8770									
.302				1.1966			1.0570			
.428						1.5988				
.444	.9478									
.487					1.8983					
.559				1.9388						
.600						2.3635				
.700						2.0592				
.736	2.1070									
.800						1.5225				
.850						1.2860				
.900				.6361		1.0667	1.6231		2.1169	

MACH (2) = 2.950 ALPHA (1) = .000 PINF = .26525 Q(PSI) = 1.6156 RN/L = 1.2100 CPSTG = 1.7529

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE P1/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						.9452		.9047		.8932
.001		.8802	.8380		.8943	1.0164	.9309	.9688		
.002						1.0422		.9904		
.003						.8967		.9020		
.004						1.0192		.9363		
.005						1.0270		.9832		
.025				.8862	.9722		.9731			
.045				.9093						
.100						1.0251		.9650	.9372	
.153	.9325									
.177					1.2305					
.200				1.2646						
.299	.9152									
.302				1.3768			1.0047			
.428						1.4038				
.444	.9621									
.487					1.7976					
.559				2.6060						
.600						2.1139				



DATE 22 APR 76

TABULATED SOURCE DATA - 1H4

PAGE 819

UPWT 1059 (1H-4) MATED/ALONE RATIO.ORB. LWR WING

(AQ3LAA)

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PI/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.700

3.1573

.736

2.9794

.800

3.2917

.850

2.7120

.900

1.3750

2.1453

3.1705

1.4356

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = .26525 Q(PSI) = 1.6156 RN/L = 1.2100 CPSTG = 1.7529

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PI/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000

.9007

.9692

.9472

.001

.5761

.7068

.8058

.7912

.9571

.9390

.002

.7891

.9208

.003

.9362

.9659

.004

.8890

.8830

.005

.7967

.9284

.025

.7452

.7293

.8603

.045

.7518

.8397

.8649

.8813

.100

.5839

.8268

.153

.177

.200

.7571

.299

.7045

.9603

.8679

.302

.428

1.0480

.444

.7682

1.3265

.487

.559

1.8286

.600

2.1671

.700

2.5521

.736

2.1231

.800

2.0863

.850

1.8216

.900

.6219

1.5202

2.2993

1.2569

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UPWT 1059 (IH-4) MATED/ALONE RATIO.ORB. LWR WING

(AQ3LAA)

MACH (3) = 3.700    ALPHA (1) = -5.000    PINF = .13175    Q(P51) = 1.2629    RN/L = 1.2000    CPSTG = 1.7839

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PI/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				.2834		.2220		1.3891
.001	1.9000	6.6963	1.4210	.7863	1.1261	.8305		
.002				7.2966		6.5583		
.003				.2752		.2326		
.004				.5098		.6099		
.005				4.4805		1.9174		
.025		2.1837	1.3628		1.1365			
.045		2.1514						
.100				1.8988		1.1088	.5349	
.153	1.7595							
.177			3.8452					
.200		2.9336						
.299	1.8887							
.302		5.7089			1.1154			
.428				2.7417				
.444	6.9582							
.487			1.7409					
.559		.6383						
.600				3.5512				
.700				4.8231				
.736	1.1796							
.800				4.0771				
.850				2.7512				
.900		2.8686		3.1306	3.1156		1.7537	

MACH ( 3 ) = 3.700    ALPHA ( 2 ) = .000    PINF = .13175    Q(PSI) = 1.2629    RN/L = 1.2000    CPSTG = 1.7839

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PI/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				.8011		.8753		.8235
.001	1.1205	.9591		.7946	.8433	.9266		
.002			.7376	.8019		.9477		
.003				.8078		.8651		
.004				.7905		.8771		
.005				.8092		.9426		
.025			.9358	.7728				
.045			.9540		.8779			
.100								
.153	1.1118			.7933		.8935	.8945	
.177								
.200			1.2014					
.299	1.1575		1.1676					



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TABULATED SOURCE DATA - IH4

PAGE 822

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. LWR WING

(AQ3LAA)

MACH ( 4 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .66200-01 Q(PSI) = .98085 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE P1/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						.7888		.8309		.8632
.001		1.2068	1.1153		.7522	.8376	.7962	.8928		
.002						.8392		.8954		
.003						.7523		.7787		
.004						.8008		.8970		
.005						.8415		1.0099		
.025				1.0129	.8277		.8371			
.045				1.0644						
.100						.6950		.8973	.9230	
.153	1.2753									
.177					1.0383					
.200				.9087						
.299	.9917									
.302				1.1350			.9299			
.428						1.4802				
.444	1.0000									
.487					2.3810					
.559				3.1395						
.600						1.8188				
.700						1.6057				
.736	4.2312									
.800						2.3871				
.850						2.8994				
.900				1.0787		2.8533	1.8628		.8933	

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

PAGE 823

UPWT 1059 (IH-4) MATED/ALONE RATIO.ORB. VRT TAIL

(AQ3VAA) ( 19 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 1.200 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = .48020 Q(PS1) = 1.8721 RN/L = 1.2000 CPSTG = 1.7063

## SECTION ( 1 ) ORB. VERT. TAIL

## DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

## X/CV

.000 .9654 1.0252 .9969 .9895  
 .300 .9532 .9406 .9133  
 .500 .9518  
 .700 .9971  
 .900 1.0662 .9742 .9730

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = .48020 Q(PS1) = 1.8721 RN/L = 1.2000 CPSTG = 1.7063

## SECTION ( 1 ) ORB. VERT. TAIL

## DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

## X/CV

.000 .9451 .9531 .9633 .9740  
 .300 .9691 .9447 .9208  
 .500 .9557  
 .700 .9870  
 .900 .9881 .9925 .9741

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000 PINF = .26525 Q(PS1) = 1.6156 RN/L = 1.2100 CPSTG = 1.7529

## SECTION ( 1 ) ORB. VERT. TAIL

## DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

## X/CV

.000 1.0095 1.0633 1.0643 1.0397  
 .300 1.1442 1.0528 1.0828  
 .500 1.0395  
 .700 .9771  
 .900 1.0237 .9533 1.0365

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## UPWT 1059 (IH-4) MATED/ALONE RATIO,ORB. VRT TAIL

(AQ3VAA)

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = .26525 Q(PSI) = 1.6156 RN/L = 1.2100 CPSTG = 1.7529

## SECTION ( 1 ) ORB. VERT. TAIL

## DEPENDENT VARIABLE P1/PU

Z/BV .2990 .5320 .7650 .9050

## X/CV

.000	.9403	.9732	1.0683	1.0074
.300	.8933	.8300	.8417	
.500		.8497		
.700		.9353		
.900	.9144	.9280	.8410	

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .13175 Q(PSI) = 1.2629 RN/L = 1.2000 CPSTG = 1.7839

## SECTION ( 1 ) ORB. VERT. TAIL

## DEPENDENT VARIABLE P1/PU

Z/BV .2990 .5320 .7650 .9050

## X/CV

.000	.3658	.2534	.2542	.5597
.300	.5357	1.2364	.5634	
.500		.7564		
.700		1.3900		
.900	8.6131	8.8461	12.6171	

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .13175 Q(PSI) = 1.2629 RN/L = 1.2000 CPSTG = 1.7839

## SECTION ( 1 ) ORB. VERT. TAIL

## DEPENDENT VARIABLE P1/PU

Z/BV .2990 .5320 .7650 .9050

## X/CV

.000	1.0760	1.0432	1.0250	.9359
.300	1.3837	1.2411	1.1936	
.500		1.2666		
.700		1.2366		
.900	1.1863	1.1899	1.2670	

MACH ( 4 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .66200-01 Q(PSI) = .98085 RN/L = 1.2000 CPSTG = 1.8033

## SECTION ( 1 ) ORB. VERT. TAIL

## DEPENDENT VARIABLE P1/PU

Z/BV .2990 .5320 .7650 .9050

## X/CV

.000	1.3440	.8378	.9335	.9459
.300	1.2323	1.0785	1.0072	
.500		1.1213		
.700		1.1583		
.900	.9985	1.1246	1.0432	

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TABULATED SOURCE DATA - IH4

PAGE 825

UPWT 1059 (IH-4) MATED/ALONE RATIO.ORB. VRT TAIL

(AQ3VAA)

MACH ( 4 ) = 4.600 ALPHA ( 2 ) = .000 P/NF = .66200-01 Q(PSI) = .98085 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE P1/PU

Z/BV	.2990	.5320	.7650	.9050
X/CV				
.000	1.1462	1.2130	.8707	.9091
.300	1.1721	1.0400	.9183	
.500		1.0532		
.700		.8950		
.900	.8417	.8516	.8274	

## UPWT 1059 (IH-4) MATED/ALONE RATIO.EXT. TANK

(AQ3TAA) ( 19 APR 76 )

### REFERENCE DATA

```

SREF = 2690.0000 SQ.FT.   XMRP = .0000 INCHES
LREF = 1290.3000 INCHES   YMRP = .0000 INCHES
BREF = 1290.3000 INCHES   ZMRP = .0000 INCHES
SCALE = .0100

```

### PARAMETRIC DATA

RN/L = 1.200 BETA = .000

MACH (1) = 3.700    ALPHA (1) = -5.000    PINF = .13175    Q(PSI) = 1.2629    RN/L = 1.2000    CPSTG = 1.7839

## SECTION ( 1 ) EXTERNAL TANK

## DEPENDENT VARIABLE PI/PU

[illegible]



DATE 22 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH-4) MATED/ALONE RATIO.EXT. TANK

(AQ3TAA)

MACH (1) = 3.700 ALPHA (1) = -5.000

SECTION (1) EXTERNAL TANK

DEPENDENT VARIABLE PI/PU

X/LT .9250 .9350 .9370 .9750

THETA  
151.000 1.4149  
180.000 .1718 14.1909  
210.000 .5698

MACH (1) = 3.700 ALPHA (2) = .000 PINF = .13175 Q(PSI) = 1.2629 RN/L = 1.2000 CPSTG = 1.7839

SECTION (1) EXTERNAL TANK

DEPENDENT VARIABLE PI/PU

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA  
.000 1.0010 .9980 1.0160 1.3371  
45.000 1.1752  
67.500 .8150  
90.000 1.9783  
112.500 1.1019 1.2826 1.3895 3.4209 14.8133 1.4436 .8156  
135.000 1.3944 1.4465 1.3427 1.4855  
157.500 1.3619 1.1302 1.2727 1.4733  
167.000 3.1830  
180.000 .9984 .9917 1.0067 1.0117 .9829 1.0165 .9779 1.9135 1.8829 1.6794 1.6360 1.8600  
197.000 .9829 .9917 1.8608 1.9030  
210.000 .9811 2.1118  
220.000 2.2209  
225.000 3.3889  
232.000 3.9622

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA  
.000 1.1137 .8656  
45.000 .9087 .9924 1.4082  
67.500 .8923 .9690 .9352 .9884 1.0099 1.8919  
90.000 .7471 .8588 .8008 .9723 1.0289 1.0460 1.0513 1.1134 1.9673  
112.500 .6346 .7871 .8013 1.1076 1.1386 1.3481 1.5145 1.5029 1.5110 2.5519  
123.000 1.3617 2.0427 2.3262  
135.000 1.6327 1.5423 1.6515 1.2594 1.2550 1.2004 1.2132 1.2577 1.6468 2.6913  
157.500 2.4787 2.8599 2.6936 2.2241 2.3052 1.1406 1.1031 1.0041 .8640 .9045 1.4568 1.6183  
161.000 2.8150  
166.000 2.3551  
180.000 4.8399 1.4312 1.8612 2.6435 1.6418 1.9185 2.0084 1.2039 1.3665 1.1878 .9181 .8164 1.6934 2.1227  
197.000 2.1429 1.1259  
210.000 1.2218 .9428  
220.000 39.1794 1.1032  
232.000 .7047 1.2046

## UPWT 1059 (IH-4) MATED/ALONE RATIO,EXT. TANK

(AQ3TAA)

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000

SECTION ( 1 ) EXTERNAL TANK DEPENDENT VARIABLE PI/PU

X/LT .9250 .9350 .9370 .9750

THETA				
123.000	2.0878			
151.000		1.1033		
180.000			1.5971	.5272
210.000			1.5449	

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .66200-01 Q(P51) = .98085 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) EXTERNAL TANK DEPENDENT VARIABLE PI/PU

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA															
.000				.9952	.9858	1.1003									1.5579
45.000															1.2975
67.500															.7617
90.000									.8559					.9663	1.3266
112.500							.8018	1.3083	1.4139	3.5078	14.6768			2.4057	1.4494
135.000									1.4457	1.5507	1.4535			2.2019	1.7368
157.500											1.5165			1.9165	3.6453
167.000															2.0711
180.000	1.0021	.9964	.9879	1.0257	.9955	1.0199	.9780	1.8137		2.1113				2.0772	2.0598
197.000					.9971	.9937				2.0999					
210.000						.9965									2.6117
220.000															2.3125
225.000															
232.000												2.9446			7.4381

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA															
.000															
45.000								.8569				1.2044			
67.500								1.2412				1.1896			1.1492
90.000				.6929				.7996	.8468	.7926	.9529	.9000			1.4640
112.500		1.0220		1.0450		1.2417		1.4304		1.4744	1.5256	1.4457	1.3620		2.3098
123.000		1.2568		1.3322		1.2698		1.9611	2.0292	2.1201	2.0292	1.9228	1.9054		2.4901
135.000														1.6494	2.2670
157.500		2.2729		2.5584		2.0864		1.4953	1.4421	1.5081	1.6990	1.6573	1.8464		3.0708
161.000	2.4614	3.4004	2.6659	2.2407		2.9515		1.4212	1.6830	1.6851	1.6176	1.6298	2.1090		2.4189
166.000															
180.000				2.8421											
197.000	6.1453	1.8569	2.0721	4.6182	2.5066	2.0019	2.3661	1.7219	1.7671	2.0537	1.6964	1.6010	2.2339		3.2374
210.000				2.5776						1.7838					3.5942
220.000								1.9340				1.8034			
232.000				13.8740						1.8536					
								1.7657				2.3171			

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

PAGE 829

UPWT 1059 (IH-4) MATED/ALONE RATIO.EXT. TANK

(AQ3TAA)

MACH ( 2) = 4.600 ALPHA ( 1) = -5.000

SECTION ( 1)EXTERNAL TANK

DEPENDENT VARIABLE PI/PU

X/LT .9250 .9350 .9370 .9750

THETA

123.000	3.1168			
151.000		1.6597		
180.000			2.5762	2.5394
210.000			1.8987	

MACH ( 2) = 4.600 ALPHA ( 2) = .000 PINF = .66200-01 Q(PSI) = .98085 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1)EXTERNAL TANK

DEPENDENT VARIABLE PI/PU

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000				.9888	.9922	.8963									1.0949
45.000															.6254
67.500															.9194
90.000								.7277	1.4018	1.4699	.9535	1.3270			1.3407
112.500										3.0806	21.0641	2.9542			1.0729
135.000									1.4913	1.5712	1.3754	1.5191			1.4022
157.500											1.4881	1.4983	1.3791		3.6212
167.000															2.1816
180.000	.9829	.9851	1.0024	1.0262	.9988	1.0511	.9579	2.4906		2.5877		2.3947	2.1928		2.3894
197.000					.9988	1.0257				2.5383					
210.000						1.0195									2.7060
220.000															2.4681
225.000												3.4598			
232.000															6.7545

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000								.9016				.8740			
45.000								.6373				.7148			1.1453
67.500						.8093		.8618				.9857			1.7483
90.000						1.0611		1.0673	.9488	.8807	1.0260	1.2440	1.2619		2.0270
112.500						1.0053		1.0691		1.0822	1.1470	1.3405	1.5742	1.7840	2.4915
123.000								1.2408	1.1686	1.1929	1.3405	1.5742	1.6634	2.0731	1.9533
135.000								1.3817		1.2771	1.3018	1.2745	1.6964		2.5506
157.500	2.7211	3.2443	3.1217	2.4262		3.0559		.8511	1.8369	1.7547	1.6570	1.7471	2.2568		2.4712
161.000	3.6109														
166.000						2.9843				1.9697					
180.000	9.2912	2.0120	2.1254	3.7529	2.3947	2.1921	2.6283	1.8576	2.3077	2.2000	1.8731	1.7853	2.5228		3.2626
197.000				2.8985						2.0618					3.7381
210.000								2.3820				1.9311			
220.000				14.1056						1.9754					
232.000								1.1680				2.2607			

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DATE 22 APR 76

TABULATED SOURCE DATA - IH4

PAGE 830

UPWT 1059 (IH-4) MATED/ALONE RATIO,EXT. TANK

(AQ3TAA)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE P1/PU

X/LT .9250 .9350 .9370 .9750

THETA

123.000 2.5960

151.000 1.2855

180.000 2.2912 .1000

210.000 2.1705

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

PAGE 831

UPWT 1059 (IH-4) MATED/ALONE RATIO, S. R. B.

(AQ3SAA) ( 19 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 1.200 BETA = .000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = .000 PINF = .13175 Q(PST) = 1.2629 RN/L = 1.2000 CPSTG = 1.7839

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE P1/PU

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	1.2027		.8871	.8521		.8199							.9143		
180.000			1.0719			.9037					.9148		1.0798		
225.000										1.4753			.7939		1.5923
247.500												1.1446	1.3283	1.5955	1.7014
260.000								9.2160							
270.000		1.8073	1.4913	.9971	1.1652	1.2701	2.5892		1.0196	1.2322	.8182	1.0478	.9479	.9714	.9658
315.000											.8038				

X/LSRB .7000 .7800 .8000 .9000 .9100 .9200 .9250 .9300 .9400 .9500 .9600 .9900

PSI															
90.000	1.0524	1.4922	.8503					1.4241					.8709		
180.000	1.2283	3.3752	3.6497	1.1226				1.3908					.6427		
210.000					.8587	1.9718		.4518			1.1025				
215.000							.6347		.3809	.5002			.2717		
225.000		6.4253	1.1608	.4993				.6436					.3641		
240.000								.5037					.3983	.3053	
247.500	1.2885														
270.000	1.1164	4.4869	.7134	.4342				.4959						.9494	
315.000	1.1420														

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = .000 PINF = .66200-01 Q(PST) = .98085 RN/L = 1.2000 CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR

DEPENDENT VARIABLE P1/PU

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	1.3573		1.0959	1.0071		.9395							.7051		
180.000				1.1982		.9810					.9600		1.3141		
225.000										1.7545			2.7166		3.0855
247.500												2.1810	2.3131	2.2561	3.2857
260.000								7.0635							
270.000		2.1534	1.8056	1.1037	1.3440	1.1930	2.2878		1.1450	1.5032	.9983	1.9464	1.6914	1.6120	2.0205
315.000												1.4454			

UPWT 1059 (IH-4) MATED/ALONE RATIO, S. R. B.

(AQ3SAA)

MACH ( 2 ) = 4.600      ALPHA ( 1 ) = .000

SECTION (1) SOLID RCKT. BSTR

DEPENDENT VARIABLE PI/PU

[illegible]

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH-4) MATED/ALONE RATIO,ORB. FUS.

(AQ3BAB) ( 19 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 3.000 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = 1.1969 Q(PSI) = 4.6665 RN/L = 3.0000 CPSTG = 1.7063

## SECTION ( 1 ) ORBITER FUSELAGE

## DEPENDENT VARIABLE PI/PU

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	.8712	.8366	.8560	1.2409		2.3259	3.0668	5.1233		1.0487					
10.000								3.2618							
20.000								2.7870							
24.500								2.4950							
39.000								1.4975							
163.000														.9417	
174.000															
180.000	.8712				.9194			.9301	.9366	.9365	.9318	.9399	.9461		.9547
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	1.5786	1.2462	.8435	.6940	.9180		2.6953				.3285		.2433	.2599	
23.000		1.0252													
24.000	1.2860														
31.500	1.3123														
33.100		.9449													
35.000	1.2291														
40.000	1.0820	1.0018													
45.000		1.0058													
50.000	1.2376														
51.600															
57.000		.9935											.9566		
60.900		1.0175													
65.000		.9947													
68.000													.9281		
69.000		1.0023													
79.300					.7916										
95.500					.8304		1.0052								
95.700		1.2562													
96.300	1.5041														
103.000					.8454										
105.000															.8483
112.600					.8555										
117.500												.9119		.9406	
120.800									.9414						
127.900					.9827										
129.500								.9513							

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UPWT 1059 (IH-4) MATED/ALCNE RATIO,ORB. FUS.

(AQ3B4B)

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
130.000									.9381	.9509		.9385			
135.000		1.1262			.9643										
139.600								.9580							
144.000												.9475			
155.000	.9515														
180.000	.9610	.9768			1.0899										
X/LB	1.0250	1.0500													
PHI															
.000	.3481	.5287													

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = 1.1969 Q(PSI) = 4.6665 RN/L = 3.0000 CPSTG = 1.7063

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	.8115	.7389	1.2158	1.6617		1.7413	1.8354	4.3057		.6922					
10.000								1.9465							
20.000								1.3308							
24.500								1.3593							
39.000								1.1665							
163.000														.9662	
174.000															
180.000	.8115				.9151			.9267	1.0042	.9444	.9286	.9510	.9450		.9568
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	1.0647	.8872	.6402	.5976	1.0734		2.3878				.2750		.1947	.2218	
23.000		.7902													
24.000	.9516														
31.500	.9700														
33.100		.6862													
35.000	.9253														
40.000	.7777	.6512													
45.000		.6050													
50.000	.9583														
51.600														1.0063	
57.000		.8517													
60.900		.8335													
65.000		.8086													
68.000														1.0640	



TABULATED SOURCE DATA - 1H4

UPWT 1059 (IH-4) MATED/ALONE RATIO,ORB. FUS..

(AQ3BAB)

MACH ( 1 ) = 2.360      ALPHA ( 2 ) = 5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

[illegible]

X/LB	1.0250	1.0500
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PHI  
.000 .3479 .5227

MACH ( 2 ) = 2.950    ALPHA ( 1 ) = .000    PINF = .66345    Q(PS1) = 4.0415    RN/L = 3.0200    CPSTG = 1.7529

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE P1/PU

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	.8709	.8110	.8024	1.2790		1.4723	2.0806	7.3552		.7346					
10.000								4.0521							
20.000								2.5408							
24.500								2.0194							
39.000								1.2373							
163.000															
174.000														.9482	
180.000	.8709				.9142			.9248	.9337	.9361	.9410	.9502	.9547		.9568

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. FUS.

(AQ38AB)

MACH (2) = 2.950 ALPHA (2) = 5.000 PINF = .66345 Q(PSI) = 4.0415 RN/L = 3.0200 CPSTG = 1.7529

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	.7835	.6695	.9072	1.4388		1.6265	1.9507	4.7763		.4151					
10.000								1.7471							
20.000								1.5483							
24.500								1.5475							
39.000								1.2435							
163.000														.9207	
174.000															
180.000	.7835				.9077			.9195	.9276	.9266	.9272	.9188	.9388		.9469
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	1.1409	.8884	.7494	.6007	1.1111		2.2855				.3348		.2372	.2566	
23.000		.7806													
24.000		.8004													
31.500		.7169													
33.100		.7819													
35.000		.6314													
40.000		.8073													
45.000		.7675													
50.000	1.1518														
51.600															
57.000		.9390												.9263	
60.900		.9083													
65.000		.9165													
68.000														.9979	
69.000		.9140													
79.300					.7001										
95.500					.7010		.9766								
95.700		1.2485													
96.300	1.0942														
103.000					.7474										
105.000															1.0122
112.600					.8003										
117.500															
120.800									.7683						
127.900						.9837									
129.500								.8042							
130.000									.8181	.8855		.9269			
135.000		1.0882			.8722				.9876						
139.600															
144.000												.8931			
155.000	.9262														
180.000	.9502	1.0022			1.1276										

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UPWT 1059 (IH-4) MATED/ALONE RATIO,ORB. FUS.

(AQ3BAB)

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB 1.0250 1.0500

PHI

.000 .3041 .4771

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -10.000 PINF = .32922 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB .0000 .0050 .0200 .0400 .0500 .0600 .0800 .1000 .1250 .1500 .1600 .1650 .1700 .1750 .1800

PHI

.000 1.3029 1.5520 1.7442 2.8835 3.7206 3.1264 17.6426 2.1262

10.000

11.8519

20.000

4.3391

24.500

4.1262

39.000

1.8054

163.000

1.0875

174.000

180.000

1.3029

1.0698

1.0596

1.0587

1.0537

1.0498

1.0870

1.0593

1.0538

X/LB

.2000

.3000

.4000

.5000

.6000

.7800

.8000

.8050

.8290

.8620

.9500

.9630

.9750

1.0000

1.0145

PHI

.000 4.5830 2.1947 2.5644 2.7309 2.3310 7.9673

23.000

4.9575

24.000

4.4375

31.500

4.8361

33.100

6.0426

35.000

5.6413

40.000

6.2472

7.4029

45.000

7.6953

50.000

1.7689

51.600

57.000

1.3058

60.900

1.5304

65.000

1.5586

68.000

69.000

1.5407

79.300

1.1186

95.500

1.1651

1.1589

95.700

1.5282

96.300

1.2481

103.000

1.3190

105.000

112.600

1.7968

117.500

1.7248

1.2311

1.1833

.9856

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(A03BAB)

60.900

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. FUS.

(AQ3B8B)

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = -5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE P1/PU

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
65.000		1.5826													
68.000													.8021		
69.000		1.4860													
79.300					1.1608										
95.500					1.2056			.9351							
95.700		1.3719													
96.300	1.2810														
103.000					1.2808										
105.000															1.0864
112.600					1.2944										
117.500															
120.800									1.2930			1.2746		1.1819	
127.900						.7824									
129.500								.9959							
130.000									1.2010	1.2963		1.2924			
135.000		.9928			1.2742										
139.600									1.1642						
144.000												1.2997			
155.000	1.0536														
180.000	1.0106	1.2806			1.1381										
X/LB	1.0250	1.0500													
PHI															
.000	.5918	.6890													

MACH ( 3 ) = 3.700 ALPHA ( 3 ) = .000 PINF = .32922 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE P1/PU

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	.8914	.8750	1.0347	1.2925		1.7637	3.0560	9.3304		.7592					
10.000								4.3006							
20.000								2.9644							
24.500								2.2414							
39.000								1.1941							
163.000														.9717	
174.000												.9637			
180.000	.8914				.9226			.9279	.9438	.9386	.9561	.9637	.9698		.9709

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(AQ3BA3)

DEPENDENT VARIABLE PI/PU

[illegible]

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(AQ3BAB)

DEPENDENT VARIABLE PI/PU

[illegible]



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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. FUS.

(AQ3BAB)

MACH (3) = 3.700 ALPHA (4) = 5.000

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB 1.0250 1.0500

PHI

.000 .5534 .6850

MACH (4) = 4.600 ALPHA (1) = -10.000 PINF = .16565 Q(P51) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB .0000 .0050 .0200 .0400 .0500 .0600 .0800 .1000 .1250 .1500 .1600 .1650 .1700 .1750 .1800

PHI

.000	1.4298	1.7068	1.8236	2.8749		3.9679	2.7994	20.1028		2.7611				
10.000								12.5160						
20.000								4.1153						
24.500								4.5368						
39.000								1.8477						

163.000														1.0678
174.000														
180.000	1.4298				1.1601			.9490	.9345	.9346	1.0378	1.0843	1.0308	.8753

X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8000 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI

.000	5.2809	2.4800	3.4383	3.5752	2.8551		8.7192				1.5417		.8022	.9872
23.000		4.2567												
24.000	4.7768													
31.500	4.1553													
33.100		4.0988												
35.000	4.5218													
40.000	5.0881	4.2972												
45.000		4.4208												
50.000	1.8438													
51.600														
57.000		1.4252											1.1306	
60.900		1.2668												
65.000		1.2748												
68.000														.9659
69.000		1.4884												
79.300					1.3528									
95.500					1.3416		1.2987							
95.700		1.4530												
96.300	1.5822													
103.000					1.2501									
105.000														1.0298
112.600					1.4246									
117.500														
120.800														

1 6638

1.4526

1.4140

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TABULATED SOURCE DATA - IH4

PAGE 845

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. FUS.

(AQ3BAB)

MACH (4) = 4.600 ALPHA (2) = -5.000

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
65.000		1.5743													
58.000													.9042		
69.000		1.4545													
79.300					1.3129										
95.500					1.4601		1.0493								
95.700		1.4745													
96.300	1.3426														
103.000					1.8065										
105.000															1.3392
112.600					1.7994										
117.500												1.6247		1.6303	
120.800									1.5193						
127.900						.9722									
129.500								.8929							
130.000									1.2243	1.5095		1.6647			
135.000		1.1335			.9905										
139.600									1.0779						
144.000												1.8736			
155.000	1.0969														
180.000	.9857	1.3283			1.0928										
X/LB	1.0250	1.0500													
PHI															
.000	.8452	.9106													

MACH (4) = 4.600 ALPHA (3) = .000 PINF = .16565 Q(P51) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	.9184	1.0677	1.1751	1.2433		1.8673	2.6743	9.7093		.8880					
10.000								2.9131							
20.000								2.4723							
24.500								2.0452							
39.000								1.2156							
163.000														.9914	
174.000												.9746			
180.000	.9184				.9547			.9666	.9855	.9752	.9706		.9993		.9993

UPWT 1059 (1H-4) MATED/ALONE RATIO.ORB. FUS.

(AQ3BAB)

MACH ( 4 ) = 4.600      ALPHA ( 3 ) = .000

SECTION (1) ORBITER FUSELAGE DEPENDENT VARIABLE PI/PU

[illegible]

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH-4) MATED/ALONE RATIO.ORB. FUS.

(AQ3BAB)

MACH (4) = 4.600 ALPHA (4) = 5.000 PINF = .16565 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	.8914	.9538	1.0833	.9436		.6139	.8775	2.0748		.6527					
10.000								.4897							
20.000								.4995							
24.500								.4694							
39.000								.8659							
163.000														.9066	
174.000															
180.000	.8914				.8840			.9054	.9114	.9074	.8953	.8912	.9083		.9258
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	.9755	1.1475	.9443	.8963	.6682		2.2866				.4512		.3118	.3810	
23.000		.9992													
24.000	.9303														
31.500	.9665														
33.100		.7555													
35.000	1.1059														
40.000	1.0297	.6579													
45.000		.6718													
50.000	.9350														
51.600													1.2670		
57.000		1.0300													
60.900		1.0339													
65.000		1.0340													
68.000															
69.000		1.0262												.7386	
79.300					.8430										
95.500					.8713		.9167								
95.700		1.2376													
96.300	1.0611														
103.000					.9172										
105.000															1.2438
112.600					1.0167										
117.500											.7938		.8629		
120.800									.7971						
127.900						.8977									
129.500								.9747							
130.000									.9062	.8071		.9082			
135.000		1.1451			1.1130				.9058						
139.600															
144.000												.9363			
155.000	.9203														
180.000	.9402	.9160			.9734										

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TABULATED SOURCE DATA - IH4

PAGE 848

UPWT 1059 (IH-4) MATED/ALONE RATIO.ORB. FUS.

(AQ38AB)

MACH ( 4 ) = 4.600 ALPHA ( 4 ) = 5.000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB 1.0250 1.0500

PHI  
.000 .4546 .5881

DATE 22 APR 76

TABULATED SOURCE DATA - IH

PAGE 849

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. UPR WING

(AQ3UAB) ( 19 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = 1.1969 Q(PSI) = 4.6665 RN/L = 3.0000 CPSTG = 1.7063

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.8791		
.200	.8378	.8236	.9086
.600	.8631	.8342	
.800		.9229	
.900		1.0152	.8657
.950		1.0702	

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = 1.1969 Q(PSI) = 4.6665 RN/L = 3.0000 CPSTG = 1.7063

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.9704		
.200	.9245	1.0067	.9753
.600	.9011	1.0102	
.800		.9759	
.900		1.0268	.9620
.950		1.0164	

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000 PINF = .66345 Q(PSI) = 4.0415 RN/L = 3.0200 CPSTG = 1.7529

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.8515		
.200	.9482	.8700	.8851
.500	.8263	.8778	
.800		.8831	
.900		1.0202	.8108
.950		.8797	

UPWT 1059 (IH-4) MATED/ALONE RATIO.ORB. UPR WING

(AQ3UAB)

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = .66345 Q(PSI) = 4.0415 RN/L = 3.0200 CPSTG = 1.7529

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	1.0170		
.200	1.0283	.9676	.9295
.600	.9309	.9827	
.800		1.0132	
.900		1.0473	.9521
.950		1.0518	

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -10.000 PINF = .32922 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	1.1871		
.200	.8322	.8543	.8348
.600	.7347	.7126	
.800		.6767	
.900		1.0117	.8270
.950		.7938	

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = -5.000 PINF = .32922 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.8708		
.200	.9140	.8447	.8593
.600	.9737	.7930	
.800		.7392	
.900		1.0172	.8412
.950		.9415	



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TABULATED SOURCE DATA - IH4

PAGE 851

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. UPR WING

(AQ3UAB)

MACH ( 3 ) = 3.700 ALPHA ( 3 ) = .000 PINF = .32922 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.7632		
.200	.8161	.8210	.8165
.600	.8304	.9464	
.800		.9380	
.900		.9895	.9055
.950		1.0237	

MACH ( 3 ) = 3.700 ALPHA ( 4 ) = 5.000 PINF = .32922 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.9073		
.200	1.2833	.9053	.9067
.600	1.1786	1.1440	
.800		1.2478	
.900		1.0042	1.0549
.950		1.1195	

MACH ( 4 ) = 4.600 ALPHA ( 1 ) = -10.000 PINF = .16565 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	1.2329		
.200	.9020	.8716	.7882
.600	.6839	.6636	
.800		.6578	
.900		.9481	.7137
.950		.8190	

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TABULATED SOURCE DATA - IH4

PAGE 852

UPWT 1059 (IH-4) MATED/ALONE RATIO. ORB. UPR WING

(AQ3UAB)

MACH (4) = 4.600 ALPHA (2) = -5.000 PINF = .16565 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION (1) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.9001		
.200	.9021	.7325	.53
.600	1.0429	.9460	
.800		1.1701	
.900		1.0024	.9648
.950		1.1508	

MACH (4) = 4.600 ALPHA (3) = .000 PINF = .16565 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION (1) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.7874		
.200	.8380	.7859	.7902
.600	.9217	.7783	
.800		.7664	
.900		.9904	.9647
.950		.9207	

MACH (4) = 4.600 ALPHA (4) = 5.000 PINF = .16565 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION (1) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.8697		
.200	.8462	.7569	.7973
.600	.8414	.9435	
.800		.9258	
.900		.9674	1.1278
.950		1.0356	

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TABULATED SOURCE DATA - IH4

PAGE 853

UPWT 1059 (IH-4) MATED/ALONE RATIO.ORB. LWR WING

(AQ3LAB) ( 19 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = 1.1969 Q(PSt) = 4.6665 RN/L = 3.0000 CPSTG = 1.7063

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE P1/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000						.9390		.9385		.9450
.001		.7408	.8107		.9855	.9868	.9356	.9501		
.002						1.0180		.9450		
.003						.9029		.9384		
.004						.9932		.9536		
.005						1.0066		.9464		
.025				1.1904	1.0899		.9872			
.045				1.1673						
.100						.9857		.9761	.9652	
.153	.8177									
.177					1.0291					
.200				.9497						
.299	.9289									
.302				.9895			.9310			
.428						1.7768				
.444	.9600									
.487					1.8799					
.559				1.9967						
.600						2.0829				
.700						2.1740				
.736	2.6944									
.800						1.8422				
.850						1.6206				
.900				1.0251		1.3785	1.9518	1.9298		

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = 1.1969 Q(PSt) = 4.6665 RN/L = 3.0000 CPSTG = 1.7063

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE P1/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000						.9297		.9726		1.1234
.001		.5516	1.0938		.9275	.8950	.9580	.9139		
.002						.8802		.8999		
.003						.9795		.9812		
.004						.9018		.9353		
.005						.8913		.9066		

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. LWR WING

(AQ3LAB)

MACH (1) = 2.350 ALPHA (2) = 5.000

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE P1/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.025				.8874	.8724		.9247			
.045				.8709						
.100						.8414		.9357	.9645	
.153	.5615									
.177					.8047					
.200				.7673						
.299	.9595									
.302				1.1314			.9027			
.428						1.6205				
.444	.8342									
.487					1.7967					
.559				1.9959						
.600						2.0700				
.700						2.0086				
.736	2.3482									
.800						1.6210				
.850						1.4056				
.900				.5865		1.1982	1.6740		1.9258	

MACH (2) = 2.950 ALPHA (1) = .000 PINF = .66345 Q(PSI) = 4.0415 RN/L = 3.0200 CPSTG = 1.7529

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE P1/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						.9746		.9339		.8994
.001		.9617	.8475		.8969	1.1158	.9811	1.0203		
.002						1.1910		1.0317		
.003						.8864		.9097		
.004						1.0850		1.0489		
.005						1.2151		1.0297		
.025				.8247	1.2894		1.0876			
.045				.8353						
.100						1.1083		1.0605	1.0103	
.153	.9155									
.177					1.2825					
.200				1.5219						
.299	.8814									
.302				1.2849			1.0138			
.428						1.1870				
.444	.8598									
.487					2.0088					
.559				2.2569						
.600						2.1367				

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TABULATED SOURCE DATA - IH4

PAGE 855

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. LWR WING

(AQ3LAB)

MACH (2) = 2.950 ALPHA (1) = .000

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE P1/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.700						2.9022				
.736	2.5611									
.800						2.9062				
.850						2.5480				
.900				.9911		2.1052	2.6911		1.0713	

MACH (2) = 2.950 ALPHA (2) = 5.000 PINF = .66345 Q(P51) = 4.0415 RN/L = 3.0200 C/PSTG = 1.7529

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE P1/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						.9133		.9716		1.0300
.001		.5992	.6069		.9068	.8681	.9503	.9145		
.002						.8345		.8991		
.003						.9484		.9543		
.004						.9027		.9990		
.005						.8558		.9058		
.025				.9015	.7530		.8935			
.045				.8932						
.100						.8603		.8912	.9158	
.153	.5594									
.177					.8326					
.200				.8394						
.299	.5446									
.302				.9334			.8582			
.428						.8499				
.444	1.0197									
.487					1.4887					
.559				1.7496						
.600						1.7712				
.700						2.6200				
.736	1.9898									
.800						2.3334				
.850						2.0139				
.900				.6550		1.6882	2.4548		1.1073	

UPWT 1059 (IH-4) MATEC/ALONE RATIO.ORB. LWR WING

(AQ3LAB)

MACH ( 3 ) = 3.700    ALPHA ( 1 ) = -10.000    PINF = .32922    Q(PSI) = 3.1550    RN/L = 3.0000    CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PI/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				1.2902		1.0604		2.0971
.001	8.9715	7.0354	1.5583	1.6689	1.1291	1.6919		
.002				2.0981		1.8189		
.003				1.1294		.9376		
.004				1.4274		1.5461		
.005				1.8481		1.7418		
.025		6.0282	1.9643		1.6944			
.045		6.9111						
.100				2.3227		1.8193	1.6393	
.153	6.1524							
.177			5.3007					
.200		7.2874						
.299	5.7154							
.302		7.0782			2.2927			
.428				6.9469				
.444	7.2070							
.487			16.4197					
.553		17.2153						
.600				11.5327				
.700				11.9815				
.736	23.4662							
.800				14.1250				
.850				10.7737				
.900		3.2538		7.6280	6.4169		3.1060	

MACH ( 3 ) = 3.700    ALPHA ( 2 ) = -5.000    PINF = .32922    Q(PSI) = 3.1550    RN/L = 3.0000    CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PI/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				.9154		.9059		1.0409
.001	4.1037	3.3452		1.0052	1.0625	.9255	1.0339	
.002					1.0988		1.0930	
.003					.8630		.8810	
.004					.9722		1.0177	
.005					1.0542		1.0182	
.025			3.2315	1.2355		1.0441		
.045			3.3823					
.100					.9946		1.0475	1.0171
.153	2.6778							
.177				2.6032				
.200			2.6835					
.299	2.6654							

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TABULATED SOURCE DATA - IH4

PAGE 857

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. LWR WING

(A03LAB)

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = -5.000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PI/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.302				3.6908			1.3618			
.428						2.5235				
.444	2.4749									
.487					6.0401					
.559				6.6067						
.600						5.2667				
.700						6.3359				
.736	6.0430									
.800						8.8463				
.850						8.0172				
.900				2.3091		5.4356	5.2500		1.5456	

MACH ( 3 ) = 3.700 ALPHA ( 3 ) = .000 PINF = .32922 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PI/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000						.7723		.9615		.7951
.001	1.1511	.8994		.6857		.7418	.8453	.8877		
.002						.7267		.9621		
.003						.7836		.8549		
.004						.7496		.8842		
.005						.7343		.9451		
.025			.8250	.7071			.8603			
.045			.8539							
.100						.7099		.9725	.9239	
.153	1.0572									
.177					1.0377					
.200				.9703						
.299	1.0180									
.302				1.1891			.8932			
.428						1.3869				
.444	.9176									
.487					2.1165					
.559				2.8394						
.600						2.1889				
.700						3.0750				
.736	3.1941									
.800						4.0740				
.850						3.9314				
.900				1.6149		3.3545	3.1136		1.0264	

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TABULATED SOURCE DATA - IH4

PAGE 859

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. LWR WING

(AQ3LAB)

MACH (4) = 4.600 ALPHA (1) = -10.000

SECTION (1) ORB. LOWER WING		DEPENDENT VARIABLE PI/PU									
2Y/BW		.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW											
.302					6.5804			2.5573			
.428							3.7206				
.444	5.7463										
.487						8.9646					
.559					16.8897						
.600						8.1562					
.700						10.5961					
.736	20.2788										
.800						10.2661					
.850						8.9080					
.900					3.8695	7.0400	5.0437		2.3089		

MACH (4) = 4.600 ALPHA (2) = -5.000 PINF = .16565 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION (1) ORB. LOWER WING		DEPENDENT VARIABLE PI/PU									
2Y/BW		.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW											
.000							.9014		.8649		.9964
.001		3.9289	3.6843		.9845	1.1601	.8955	1.0230			
.002						1.1612		1.0627			
.003						.7938		.8021			
.004						1.0320		1.0252			
.005						1.1320		1.0359			
.025					3.0089	1.2269		1.0804			
.045					3.1405						
.100							1.0124		1.0464	1.0142	
.153	3.0545										
.177						2.4028					
.200					2.7116						
.299	2.8366										
.302					2.9749			1.1559			
.428							2.5082				
.444	2.9642										
.487						4.6439					
.559					7.7757						
.600						4.7025					
.700						4.9643					
.736	10.4936										
.800						7.8235					
.850						7.4624					
.900					2.3411	5.8219	4.5031		1.9552		



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TABULATED SOURCE DATA - IH4

PAGE 861

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. LWR WING

(AQ3LAB)

MACH (4) = 4.600 ALPHA (4) = 5.000

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PI/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.302				.7147			.7461			
.428						.6872				
.444	.5783									
.487					1.0953					
.559				1.7342						
.600						1.0292				
.700						1.5939				
.736	2.2172									
.800						2.1829				
.850						2.1827				
.900				1.2146		2.0401	1.5012		.8988	

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UPWT 1059 (IH-4) MATED/ALONE RATIO.ORB. VRT TAIL

(AQ3VAB) ( 19 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = .000

MACH ( 1 ) = 2.360 ALPHA ( 1 ) = .000 PINF = 1.1969 Q(PSI) = 4.6665 RN/L = 3.0000 CPSTG = 1.7063

## SECTION ( 1 ) ORB. VERT. TAIL

## DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

## X/CV

.000	.9757	1.0151	.9935	.9886
.300	.9637	.9595	.9037	
.500		.9611		
.700		.9587		
.900	.9685	.9550	.9658	

MACH ( 1 ) = 2.360 ALPHA ( 2 ) = 5.000 PINF = 1.1969 Q(PSI) = 4.6665 RN/L = 3.0000 CPSTG = 1.7063

## SECTION ( 1 ) ORB. VERT. TAIL

## DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

## X/CV

.000	.9519	.9489	.9289	.9780
.300	.9590	.9506	.9051	
.500		.9528		
.700		.9620		
.900	.9528	.9528	.9443	

MACH ( 2 ) = 2.950 ALPHA ( 1 ) = .000 PINF = .66345 Q(PSI) = 4.0415 RN/L = 3.0200 CPSTG = 1.7529

## SECTION ( 1 ) ORB. VERT. TAIL

## DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

## X/CV

.000	1.0309	1.0413	1.0575	1.0364
.300	.9899	1.0168	1.1069	
.500		1.0202		
.700		.9622		
.900	1.0194	.9581	1.0394	

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. VRT TAIL

(AQ3VAB)

MACH ( 2 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = .66345 Q(PSI) = 4.0415 RN/L = 3.0200 CPSTG = 1.7529

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	.9527	.9770	1.0116	1.0017
.300	.9742	.7946	.8379	
.500		.8798		
.700		.9418		
.900	.9226	.9428	.8738	

MACH ( 3 ) = 3.700 ALPHA ( 1 ) = -10.000 PINF = .32922 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	.7851	.9510	.9628	.9772
.300	1.4932	1.2454	1.0110	
.500		1.4278		
.700		1.2991		
.900	1.1457	1.1686	1.2399	

MACH ( 3 ) = 3.700 ALPHA ( 2 ) = -5.000 PINF = .32922 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.2643	.8627	.9462	.9562
.300	1.2252	1.1690	1.0302	
.500		1.3437		
.700		1.3372		
.900	1.0786	1.2942	1.2897	

MACH ( 3 ) = 3.700 ALPHA ( 3 ) = .000 PINF = .32922 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.1253	1.0052	1.0109	.9362
.300	1.3159	1.1908	1.0901	
.500		1.1664		
.700		1.1019		
.900	1.1312	1.0916	1.2579	

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. VRT TAIL

(AQ3VAB)

MACH ( 3 ) = 3.700 ALPHA ( 4 ) = 5.000 PINF = .32922 Q(P51) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VRT. TAIL

DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.0105	1.0668	1.0751	1.0022
.300	.9683	1.0331	1.1967	
.500		1.0366		
.700		.9830		
.900	.9762	1.0109	1.0230	

MACH ( 4 ) = 4.600 ALPHA ( 1 ) = -10.000 PINF = .16565 Q(P51) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. VRT. TAIL

DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	.7910	.9411	.9800	.9728
.300	1.2554	1.1039	.9983	
.500		1.1964		
.700		1.3635		
.900	1.1649	1.3163	1.0883	

MACH ( 4 ) = 4.600 ALPHA ( 2 ) = -5.000 PINF = .16565 Q(P51) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. VRT. TAIL

DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.2708	.8079	.9173	.9487
.300	1.1591	1.1719	1.0134	
.500		1.2205		
.700		1.4745		
.900	1.0704	1.4424	1.2650	

MACH ( 4 ) = 4.600 ALPHA ( 3 ) = .000 PINF = .16565 Q(P51) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. VRT. TAIL

DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.1348	1.2308	.8576	.9111
.300	1.3630	1.1800	1.0514	
.500		1.1791		
.700		1.1147		
.900	1.0990	1.0769	1.1412	

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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH-4) MATED/ALONE RATIO,ORB. VRT TAIL

(AQ3VAB)

MACH (4) = 4.600 ALPHA (4) = 5.000 PINF = .16565 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION (1) ORB. VERT. TAIL

DEPENDENT VARIABLE P1/PU

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.0405	1.0401	1.0589	1.0238
.300	1.0636	1.1133	1.0973	
.500		1.1259		
.700		1.0656		
.900	.9698	1.0416	1.0477	

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OF POOR QUALITY

UPWT 1059 (IH-4) MATED/ALONE RATIO,EXT. TANK

(AQ3TAB) ( 19 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = .000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -10.000 PINF = .32922 O'PS1) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) EXTERNAL TANK

## DEPENDENT VARIABLE PI/PU

X/LT	.0000	.0050	.0100	.0400	.0800	.1500	.2000	.2500	.2750	.3000	.3250	.3350	.3500	.3750	.4000
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

## THETA

.000				.9957	.9840	.9355									1.4770
45.000															.5394
67.500										.8974			.5613		.3978
90.000							1.0320	1.2295	1.4025	5.8740	12.3523		1.7083		1.1302
112.500									1.3840	1.5090	1.5260		3.2485		2.2977
135.000											1.4705		1.4730	1.3294	1.0770
157.500															2.0278
167.000															1.7339
180.000	.9996	1.0019	.9912	.9959	.9954	1.0188	1.0040	1.0521		1.0311			1.0487	1.1473	2.4622
197.000					.9945	1.0004				1.0582					
210.000						.9821									1.9865
220.000															1.7692
225.000												2.1252			
232.000															3.8517

X/LT	.4250	.4500	.4750	.5000	.5250	.5500	.5750	.6000	.6500	.7000	.7500	.8000	.8500	.8750	.9000
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## THETA

.000								.8910				.7870			
45.000								.5467				1.3038			1.7129
67.500				.4272				.6334	.6775	.9351	1.2911	1.3007			1.7997
90.000		1.2623		1.4486		2.3606		3.1592		2.2495	2.3314	2.2969	2.2218		4.7664
112.500		1.7885		2.2584		2.6117		3.2035	3.3204	2.8238	2.6741	2.3713	2.5880		3.9317
123.000													2.4322	3.7406	3.5603
135.000		2.2871		2.5199		1.7693		1.7338	1.7318	2.0111	1.8517	1.6888	1.6517		3.6750
157.500	1.9805	3.3137	1.9789	1.5753		1.8104		1.7547	1.4716	1.4745	1.5720	1.5353	2.2148		1.8716
161.000	3.3219														
166.000				1.3726						1.3080					
180.000	2.8323	1.6520	2.0488	2.6471	1.1310	1.5867	1.4243	1.1501	1.4964	1.3754	1.3203	1.1883	2.4875		1.8538
197.000				1.1105						1.3839					1.7134
210.000								1.5942				1.4114			
220.000				10.3173						1.5898					
232.000								2.5936				2.4139			

X/LT	.9250	.9350	.9370	.9750
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## THETA

123.000	3.4839
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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH-4) MATED/ALONE RATIO,EXT. TANK

(AQ3TAB)

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -10.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PI/PU

X/LT .9250 .9350 .9370 .9750

THETA

151.000	2.3352		
180.000		1.8053	1.7496
210.000		1.7046	

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = -5.000 P-INF = .32922 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PI/PU

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000			1.0013	.9963	.9756										1.3920
45.000															1.1127
67.500															.5278
90.000															.9515
112.500							1.0719	1.1876	1.3332	4.6416	12.2405				1.5167
135.000									1.3226	1.4181	1.4218				.7396
157.500											1.4113				1.8844
167.000															1.7349
180.000	.9971	.9925	.9868	1.0090	.9973	1.0106	.9945	1.0829		1.1905			1.4006	1.8345	1.9246
197.000					.9978	.9836				1.0922					
210.000						.9679									1.8627
220.000															1.7409
225.000															
232.000												2.1380			3.7608

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000								1.1716				.7828			
45.000								.6931				.9548			1.3455
67.500								.6113	.7032	.8701	.9793	1.1148			1.5586
90.000								1.6166		1.4990	1.4816	1.5145			2.1104
112.500								1.7424	2.2455	2.5061	2.1684	2.0330	2.0037		2.5539
123.000												1.9464			3.2332
135.000								1.3571	1.5017	1.5672	1.6878	1.5441	1.4704		3.3697
157.500	1.9626	3.3509	2.1413	2.1150		1.8443		1.2087	1.5173	1.3885	1.2120	1.3033	2.0530		1.6927
161.000	4.0299														
166.000															
180.000	2.7091	1.9013	1.9602	3.1976	1.2236	1.6250	1.6995	1.4906	1.6845		1.2666	1.0733	2.5116		1.9157
197.000				1.4861											1.8226
210.000								1.5718				1.2856			
220.000															
232.000								1.5428				1.7001			

UPWT 1059 (IH-4) MATED/ALONE RATIO,EXT. TANK

(AQ3TAB)

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = -5.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PI/PU

X/LT .9250 .9350 .9370 .9750

THETA

123.000	2.3664			
151.000		1.6040		
180.000			1.4791	1.2445
210.000			2.0793	

MACH ( 1 ) = 3.700 ALPHA ( 3 ) = .000 PINF = .32922 Q(PSI) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PI/PU

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000			1.0010	1.0016	.9984									1.4469
45.000														1.1685
67.500									1.2310			1.4971		.8074
90.000							1.0404	1.1508	1.3199	3.9856		1.5759		1.0090
112.500									1.3002	1.3838	1.4122	1.6854		.8921
135.000											1.3516	1.4718	.9857	1.1062
157.500														1.8238
167.000														2.0279
180.000	.9983	.9888	1.0028	1.0162	.9883	1.0054	.9864	1.3669		1.3669		1.6753	1.8845	1.9293
197.000					.9852	.9774				1.3668				
210.000						.9649								1.9778
220.000														1.6728
225.000											1.9186			
232.000														2.9572

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000								1.0659				.9494		
45.000								.8983				1.1048		1.6166
67.500				.5694				.9220	1.1341	1.1119	.9926	1.0350		2.0469
90.000		.5975		.5156		.7678		1.2023		.9524	.9431	.9327	1.0285	2.6079
112.500		.6487		.6898		.8204		1.2283	1.3986	1.6257	1.5318	1.4694	1.4030	3.1156
123.000													1.4132	3.0374
135.000		1.6443		2.3990		1.5668		1.1647	1.2567	1.1583	1.2829	1.2377	1.6000	3.3189
157.500	2.4549	3.0215	2.0046	2.3012		1.7426		1.6403	1.4284	1.3172	1.0758	1.3264	1.8432	1.7850
161.000	3.2812													
166.000				2.8201										
180.000	2.7224	2.2127	2.5266	3.4292	1.3449	1.7850	1.9658	1.6832	1.9534	1.5925	1.2616	1.0016	2.5130	2.0872
197.000				2.2636						1.6406				2.0963
210.000								1.6142				1.2760		
220.000				14.7915						1.4870				
232.000								1.0672				1.4230		

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH-4) MATED/ALONE RATIO,EXT. TANK

(AQ3TAB)

MACH (1) = 3.700 ALPHA (3) = .000

SECTION (1)EXTERNAL TANK

DEPENDENT VARIABLE PI/PU

X/LT .9250 .9350 .9370 .9750

THETA

123.000	2.2143			
151.000		1.4838		
180.000			1.9792	1.9350
210.000			1.7782	

MACH (1) = 3.700 ALPHA (4) = 5.000 PINF = .32922 Q(P51) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

SECTION (1)EXTERNAL TANK

DEPENDENT VARIABLE PI/PU

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000															1.5647
45.000			1.0033	1.0038	1.0352										.8212
67.500									1.3414			2.1735			1.3880
90.000							1.0629	1.2210	1.3543	4.2293	11.1729	1.8900			1.1300
112.500									1.3746	1.3753	2.0245	1.1947			.5877
135.000											1.4872	1.3852	1.3952		1.3690
157.500															2.1168
167.000															2.1669
180.000	.9979	.9999	1.0212	1.0187	.9990	1.0139	1.0464	1.8043		1.7044		1.6616	1.7865		2.1681
197.000					.9854	.9878				1.7182					
210.000						.9602									2.2907
220.000															1.5750
225.000												1.9790			
232.000															2.5134

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000								1.2746				1.0918			
45.000								1.3238				1.2941			
67.500				1.0838				1.1654	1.3200	1.3977	1.4646	1.5593			1.5297
90.000		.7759		.6526		.8554		.9753		1.3461	1.6873	1.7495	1.6033		1.9390
112.500		.5583		.5659		.7099		1.0982	1.3359	1.4964	1.6402	1.6528	1.7016		3.4296
123.000													1.5304	2.9412	3.4427
135.000		1.0200		.9580		.9878		1.1073	1.1551	1.2616	1.2640	1.2367			3.1219
157.500	2.2761	2.1500	1.9160	1.8774		1.7578		1.3392	1.1971	1.0336	.8942	1.4447	1.8493		2.5402
161.000	2.0809														1.8536
166.000				2.2921											
180.000	3.3685	2.5513	2.4074	2.3706	1.9560	2.1807	2.1235	1.7119	1.5591	1.2745	.9153	1.2923	2.5266		2.0697
197.000				2.2012						1.2714					2.1106
210.000								1.5185				1.3011			
220.000				17.0000						1.3569					
232.000								.7811				1.3925			

## UPWT 1059 (IH-4) MATED/ALONE RATIO.EXT. TANK

(AQ3TAB)

MACH (1) = 3.700 ALPHA (4) = 5.000

SECTION (1) EXTERNAL TANK DEPENDENT VARIABLE P1/PU

X/LT .9250 .9350 .9370 .9750

THETA

123.000 2.7806

151.000 1.5487

180.000 1.7778 1.3147

210.000 1.8663

MACH (2) = 4.600 ALPHA (1) = -10.000 PINF = .16565 Q(P51) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION (1) EXTERNAL TANK DEPENDENT VARIABLE P1/PU

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000

.9726 .9594 .9731

1.3326

45.000

.6693

67.500

.6924

90.000

1.0697 1.2785 1.5000 .9558 15.3876

.8914

1.5219

112.500

1.4880 1.6745 1.7597

2.3514

2.6599

135.000

1.6227

1.5007 1.3100

1.2071

157.500

1.9554

167.000

1.6742

180.000

.9837 .9979 .9879 1.0165 1.0110 1.0362 1.0276 1.1367

1.0997

1.1776 1.5477

2.3705

197.000

1.0132 1.0067

1.1447

210.000

.9915

2.0571

220.000

1.7062

225.000

2.0044

232.000

5.1614

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000

1.3244

.9204

45.000

.6204

1.0407

2.1622

67.500

.7109

.7308

.7079

.7497

.9158

1.0401

1.5289

90.000

1.4696

1.6214

2.1963

3.7390

2.5860

2.7731

2.6175

2.5252

3.7851

112.500

1.9835

2.3682

3.1351

2.8937

3.9355

3.4943

3.0338

2.8279

2.8889

3.4315

123.000

2.1952

3.0606

3.8441

135.000

2.7844

3.3741

2.2412

1.9201

1.8623

2.0957

2.2303

1.9568

1.7927

4.0271

157.500

1.8871

3.3412

2.0351

1.6612

2.1282

1.3973

1.3936

1.5584

1.4864

1.6749

2.6605

2.0494

161.000

3.4134

166.000

1.5503

1.6066

180.000

3.3164

1.9584

2.1628

2.9927

1.5801

1.5777

1.7191

1.2238

1.1569

1.6154

1.3819

1.2858

2.7006

2.4625

197.000

1.2547

1.5410

2.0021

210.000

1.7026

1.4548

220.000

9.3321

1.6944

232.000

2.4317

2.6726

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH-4) MATED/ALONE RATIO,EXT. TANK

(AQ3TAB)

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -10.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PI/PU

X/LT .9250 .9350 .9370 .9750

THETA

123.000 3.8283

151.000 2.2778

180.000

210.000

1.7493 1.6699

1.8731

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = -5.000 PINF = .16565 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PI/PU

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000

45.000

67.500

90.000

112.500

135.000

157.500

167.000

180.000

197.000

210.000

220.000

225.000

232.000

.9959 .9883 .9744

.8816 1.3011 1.4734 .9628  
1.4877 1.6124 1.58971.1858  
2.3739  
2.8234  
1.5986 1.0712 1.0280

1.5347

1.1017

.7299

1.3797

1.8153

2.0711

1.9305

1.9481

2.3428

2.2243

5.6449

1.0075 1.0204 1.0052 1.0335 1.0009 1.0312 1.0051 1.1930

1.4842  
1.4429

1.6377 2.1062

2.0262

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000

45.000

67.500

90.000

112.500

123.000

135.000

157.500

161.000

166.000

180.000

197.000

210.000

220.000

232.000

1.2362

.6421

.6739

1.4177

2.0112

1.5554

1.1203

1.5658

1.5543

.6598

2.0736

1.6766

1.5826

1.5276

1.5179

1.8360

1.7275

1.9020

1.8360

1.7914

1.5543

.6654

1.8127

1.8380

1.8127

2.7485

1.6713

1.6547

1.6713

1.9557

1.6547

1.9557

1.9557

1.9557

1.9557

.8192

1.8380

1.8380

2.6507

1.9557

1.9557

1.9557

1.9557

1.9557

1.9557

1.9557

1.9557

.9944

.7358

.9121

1.8935

2.3846

1.6634

2.4040

2.0965

1.9114

2.3925

1.4088

1.3245

2.7570

1.8833

1.6634

2.4040

2.0965

1.9114

2.3925

1.4088

1.3245

2.7570

1.8833

1.8833

1.8833

1.8833

1.8833

1.8833

2.6337

2.6337

2.6337

2.6337

2.6337

2.6337

2.6337

2.6337

2.6337

2.6337

2.6337

2.6337

2.6337

2.6337

1.6169

1.8839

2.3141

2.4717

3.1351

3.4253

1.9399

2.2649

2.1307

ORIGINAL PAGE IS  
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UPWT 1059 (IH-4) MATED/ALONE RATIO,EXT. TANK

(AQ3TAB)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = -5.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE P1/PU

X/LT .9250 .9350 .9370 .9750

THETA  
 123.000 3.1147  
 151.000 1.5944  
 180.000 1.6440 1.1276  
 210.000 2.4480

MACH ( 2 ) = 4.600 ALPHA ( 3 ) = .000 PINF = .16565 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE P1/PU

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA  
 .000 .9855 .9831 .9791 1.6485  
 45.000 1.0598  
 67.500 1.9565  
 90.000 1.0741 1.3509 1.4757 3.2735 15.7774 1.8041 1.2903  
 112.500 1.5026 1.5731 1.3942 1.9261 1.0339  
 135.000 1.5463 1.1503 1.2350 1.4167  
 157.500 2.7118  
 167.000 2.3109  
 180.000 .9836 .9891 1.0209 1.0368 1.0065 1.0446 1.0274 1.8959 1.8872 1.8693 1.9550 2.2257  
 197.000 .9996 1.0276  
 210.000 1.0051 2.5291  
 220.000 2.1635  
 225.000 2.2271  
 232.000 5.0843

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA  
 .000 1.2690 1.0736  
 45.000 .9913 1.1774 1.6994  
 67.500 .8854 1.0167 .9697 .9825 1.0401 1.9738  
 90.000 .7574 .8526 .8373 1.0478 1.0621 1.1560 1.2599 1.2076 2.0968  
 112.500 .9626 .7999 .9280 1.0753 1.1047 1.3372 1.6152 1.7081 1.8036 2.8275  
 123.000 1.4330 1.8281 2.8802  
 135.000 1.8566 2.2221 1.9175 1.4488 1.3754 1.4283 1.3184 1.2613 1.5672 2.9348  
 157.500 2.6551 3.0179 2.7060 2.4750 2.8320 1.1144 1.9735 1.9612 1.7429 1.5400 2.0775 2.3057  
 161.000 2.7954  
 166.000 2.9557  
 180.000 4.4792 1.9982 2.2568 4.3244 2.0427 2.0806 2.5119 2.0739 2.5658 2.3672 1.9990 1.6147 2.8601 2.9595  
 190.000 2.7296 2.3973 2.8401  
 197.000 2.1321  
 210.000 1.8864 1.8257  
 220.000 13.1795 1.1679 1.8151  
 232.000

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

PAGE 873

UPWT 1059 (IH-4) MATED/ALONE RATIO,EXT. TANK

(AQ3TAB)

MACH ( 2 ) = 4.600 ALPHA ( 3 ) = .000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PI/PU

X/LT .9250 .9350 .9370 .9750

THETA  
 123.000 2.6473  
 151.000 1.7698  
 180.000 2.2330 3.7052  
 210.000 2.1362

MACH ( 2 ) = 4.600 ALPHA ( 4 ) = 5.000 PINF = .16565 Q(PSI) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PI/PU

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA  
 .000 .9923 .9905 .9849 1.4190  
 45.000 .8584  
 67.500 1.6890  
 90.000 1.5565  
 112.500 1.0339 1.3007 1.4731 3.9018 14.4949 2.5602 1.5565  
 135.000 1.5568 1.5519 1.7061 1.4506 .8326  
 157.500 1.6419 1.6380 1.6173 1.5585  
 167.000 3.1816  
 180.000 .9848 .9983 1.0492 1.0752 1.0328 1.0549 1.1762 2.3812 2.3493 2.0180 1.9893 3.0197  
 197.000 1.0060 1.0567 2.3282  
 210.000 1.0092 2.4045  
 220.000 1.9715  
 225.000 2.6119  
 232.000 4.1873

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA  
 .000 1.0446 1.0775  
 45.000 1.3841 1.3883 1.9343  
 67.500 1.2126 1.4503 1.5504 1.6027 1.6716 2.4663  
 90.000 1.1607 .9579 1.1306 1.2980 1.5463 1.6733 3.2412  
 112.500 .8370 .8326 .8371 1.1101 1.1383 1.2872 1.4676 1.5430 1.8621 3.2805  
 123.000 1.6100 2.0308 2.8320  
 135.000 1.1076 .7382 .7253 .9274 1.1835 1.4533 1.4349 1.2474 2.4530 3.2332  
 157.500 2.0694 2.0211 2.3915 2.1950 2.6320 .9815 1.3409 1.1202 .9254 .9688 1.5787 2.6680  
 161.000 1.8307  
 166.000 2.8424  
 180.000 6.0919 3.9127 3.6396 2.3692 2.9045 3.1937 3.2266 1.8103 1.6378 1.2986 1.2438 .9406 .9373 2.2931 2.8378  
 197.000 3.1299 1.1981  
 210.000 1.5526 1.1163 2.8535  
 220.000 15.7621 1.4439  
 232.000 .6843 1.2039

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

PAGE 874

UPWT 1059 (IH-4) MATED/ALONE RATIO,EXT. TANK

(AQ3TAB)

MACH ( 2) = 4.600 ALPHA ( 4) = 5.000

SECTION ( 1)EXTERNAL TANK

DEPENDENT VARIABLE P1/PU

X/LT .9250 .9350 .9370 .9750

THETA

123.000 4.1498

151.000 2.0101

180.000 1.7990 .8513

210.000 2.1260



DATE 22 APR 76

TABULATED SOURCE DATA - IH4

PAGE 875

UPWT 1059 (IH-4) MATED/ALONE RATIO, S. R. B.

(AQ3SAB) (19 APR 76)

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 3.000 BETA = .000

MACH (1) = 3.700 ALPHA (1) = .000 PINF = .32922 Q(P51) = 3.1550 RN/L = 3.0000 CPSTG = 1.7839

## SECTION (1) SOLID RCKT. BSTR

## DEPENDENT VARIABLE PI/PU

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	1.2125		.9666	.9206		.8876							.9769		
180.000			1.0367			.8661					.8748		.9252		
225.000										1.5622			1.4379		1.5344
247.500												.5803	1.3264	1.4606	1.4538
260.000								7.8361							
270.000		1.8157	1.4428	.9491	.9488	1.2541	3.0759		.9141	1.5672	.8423	.5501	1.0064	.9640	.9285
315.000												.6024			

X/LSRB .7000 .7800 .8000 .9000 .9100 .9200 .9250 .9300 .9400 .9500 .9600 .9900

PSI															
90.000	.7991	1.4772	1.6398					.7187				.7570			
180.000	.9443	2.9141	8.6260	1.2286				.7368			.7264	.7095			
210.000					.7734	.4551		.4757		.5960					
215.000							.2153		.2529		.1847				
225.000		6.8757	2.2876	.5093				.4069			.2427				
240.000								.2544			.2102	.2117			
247.500	1.0131														
270.000	1.0678	3.9770	1.4698	.4295				.3047				.9905			
315.000	1.2073														

MACH (2) = 4.600 ALPHA (1) = .000 PINF = .16565 Q(P51) = 2.4532 RN/L = 3.0000 CPSTG = 1.8033

## SECTION (1) SOLID RCKT. BSTR

## DEPENDENT VARIABLE PI/PU

X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000
PSI															
90.000	1.3527		1.0358	.9584		.9084							1.1805		
180.000			1.1059			.8717					.8935		.9866		
225.000										1.5768			.8926		1.9010
247.500												1.2776	1.4163	1.6355	1.9096
260.000								5.6632							
270.000		2.1162	1.6748	1.0007	.9976	1.2964	1.9742		.8888	1.9335	1.0537	.9402	.9334	.9075	.8804
315.000												.6669			



DATE 22 APR 76

TABULATED SOURCE DATA - IH4

PAGE 877

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. FUS.

(AQ3BAC) ( 19 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 5.000 BETA = .000

MACH ( 1 ) = 2.950 ALPHA ( 1 ) = .000 PINF = 1.1042 Q(P51) = 6.7266 RN/L = 5.0200 CPSTG = 1.7529

## SECTION ( 1 ) ORBITER FUSELAGE

## DEPENDENT VARIABLE PI/PU

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	.8798	.8231	.8092	1.2455		1.4859	2.4443	7.4688		.5866					
10.000								4.0909							
20.000								2.5523							
24.500								2.0481							
39.000								1.2992							
163.000														.9536	
174.000												.9553			
180.000	.8798				.9216		.9318	.9396	.9392	.9492			.9609		.9631
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	1.7420	1.2545	1.1682	.9365	.6560		2.5126				.3616		.2863	.3287	
23.000		1.1986													
24.000	1.3688														
31.500	1.3041														
33.100		1.3319													
35.000	1.2108														
40.000	1.4227	1.4707													
45.000		1.5523													
50.000	1.3924														
51.600													.9348		
57.000		1.0969													
60.900		1.1855													
65.000		1.2862													
68.000													.8768		
69.000		1.3677													
79.300					.8439										
95.500					.8660		.9098								
95.700		1.3731													
96.300	1.0509														
103.000					.8779										
105.000															.8696
112.600					.8962										
117.500											.8661		.9223		
120.800								.8865							
127.900						1.5844									
129.500							.9924								

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UPWT 1059 (IH-4) MATED/ALONE RATIO,ORB. FUS.

(AQ3BAC)

MACH (1) = 2.950 ALPHA (1) = .000

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
130.000									.9168	.9247		.9418			
135.000		.9872			1.0606										
139.600								.9732							
144.000												.9998			
155.000	.9554														
180.000	.9617	1.0025			1.2118										
X/LB	1.0250	1.0500													
PHI															
.000	.4250	.6295													

MACH (1) = 2.950 ALPHA (2) = 5.000 PINF = 1.1042 Q(PSI) = 6.7266 RN/L = 5.0200 CPSTG = 1.7529

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	.7871	.6701	.8159	1.5806		1.7466	1.8914	4.6768		.3635					
10.000								1.8711							
20.000								1.6582							
24.500								1.5203							
39.000								1.2243							
163.000														.9227	
174.000															
180.000	.7871				.9105			.9194	.9279	.9291	.9287	.9245	.9415		.9503
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	1.2379	1.0059	.7831	.6363	1.2965		2.2500				.3255		.2535	.2666	
23.000		.7961													
24.000	.9819														
31.500	.8129														
33.100		.8089													
35.000	.6691														
40.000	.9054	.8136													
45.000		.8376													
50.000	1.2613														
51.600															
57.000		.9358											1.0334		
60.900		.9295													
65.000		.9079													
68.000														1.0035	

**PAGE 879**

(AQ3BAC)

MACH (2) = 3.700    ALPHA (1) = -5.000    PINF = .54730    Q(PS1) = 5.2445    RN/L = 4.9900    CPSTG = 1.7839

[illegible]

DATE 22 APR 76

TABULATED SOURCE DATA - 1H4

PAGE 880

UPWT 1059 (IH-4) MATED/ALONE RATIO.ORB. FUS.

(AQ3BAC)

MACH ( 2 ) = 3.700 ALPHA ( 1 ) = -5.000

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

[illegible]

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

PAGE 881

UPWT 1059 (IH-4) MATED/ALCNE RATIO,ORB. FUS.

(AQ3BAC)

MACH ( 2 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .54730 Q(PSI) = 5.2445 RN/L = 4.9900 CPSTG = 1.7839

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	.8994	.8490	.8171	1.3272		1.5997	1.7853	10.3607		.9047					
10.000								5.1602							
20.000								2.3462							
24.500								1.5939							
39.000								1.1877							
163.000														.9616	
174.000															
180.000	.8994				.9206			.9221	.9321	.9330	.9489	.9575	.9592		.9609
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	1.9155	1.4287	1.4688	1.1947	.9566		3.0230				.5233		.4057	.4346	
23.000		1.6983													
24.000	1.3333														
31.500	1.1672														
33.100		1.9032													
35.000	1.0875														
40.000	1.2973	1.8495													
45.000		1.8342													
50.000	1.1691														
51.600															
57.000		1.3445											.8373		
60.900		1.3475													
65.000		1.4504													
68.000															
69.000		1.4300												.8362	
79.300					.9438										
95.500					.9556		.9048								
95.700		1.0761													
96.300	1.0150														
103.000					.9622										
105.000															1.0433
112.600					.9685										
117.500											.8265		.8114		
120.800									.9382						
127.900						1.7056									
129.500								1.1340							
130.000									.9564	.9185	1.0057				
135.000		.9845			1.1517				.8803						
139.600															
144.000															
155.000	.9659										1.1287				
180.000	.9482	1.0097			1.0032										

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UPWT 1059 (IH-4) MATED/ALONE RATIO.ORB. FUS.

(AQ3BAC)

MACH ( 2 ) = 3.700 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE P1/PU

X/LB 1.0250 1.0500

PHI

.000 .4888 .6038

MACH ( 3 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .27620 Q(P51) = 4.0904 RN/L = 5.0000 CPSTG = 1.8033

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE P1/PU

X/LB .0000 .0050 .0200 .0400 .0500 .0600 .0800 .1000 .1250 .1500 .1600 .1650 .1700 .1750 .1800

PHI

.000 1.1539 1.2444 1.2222 1.8912 2.5485 2.1348 12.4413 1.9441

10.000

8.1219

20.000

2.5227

24.500

2.5827

39.000

1.3773

163.000

174.000

180.000

1.1539

1.0507

1.0461

1.0526

1.0531

1.1038

1.1273

1.0780

1.1191

1.0364

X/LB .2000 .3000 .4000 .5000 .6000 .7800 .8000 .8050 .8290 .8620 .9500 .9630 .9750 1.0000 1.0145

PHI

.000 4.0081 2.2460 2.4701 2.3999 1.6915 6.1607 1.1186 .6267 .6279

23.000

2.4322

24.000

2.8648

31.500

2.5529

33.100

2.7045

35.000

2.6503

40.000

2.9429

3.1918

45.000

3.7727

50.000

1.5206

51.600

.8385

57.000

1.3340

60.900

1.2467

65.000

1.3948

68.000

.8366

69.000

1.4617

79.300

1.2408

95.500

1.2882

1.0454

95.700

1.2857

96.300

1.2408

103.000

1.4071

105.000

1.2287

1.2801

112.600

117.500

1.6344

1.4878

120.800

1.5261



TABULATED SOURCE DATA - 1H4

UPWT 1059 (IH-4) MATED/ALONE RATIO,ORB. FUS.

(AQ3BAC)

MACH ( 3 ) = 4.600 ALPHA ( 1 ) = -5.000

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------

PHI

127.900 .7429

129.500 17125 .9718

130.000 1.2810 1.5812

[illegible]

139.600 1.1895

144.000 1.5501

155.000 1.0958

180.000	.9790	1.2686	1.0680
---------	-------	--------	--------

X/LB	1.0250	1.0500
------	--------	--------

PHI

.000	.6411	.7318
------	-------	-------

MACH ( 3 ) = 4.600    ALPHA ( 2 ) = .000    PINF = .27620    Q(PSI) = 4.0904    RN/L = 5.0000    CPSTG = 1.8033

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

PHI

.000	.9181	.8697	1.0328	1.2087	1.7811	3.0292	9.5871	.7321
------	-------	-------	--------	--------	--------	--------	--------	-------

10.000	1.0101	1.0037	1.0028	1.0007	1.0011	0.9992	0.9971
10.000							4.1189

20.000	3.1231
--------	--------

24.500	2.2756
--------	--------

39.000	1.1519
--------	--------

163,000	1.1519	.9982
---------	--------	-------

[illegible]

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------

PHI

.000	2.1119	1.3223	1.5462	1.4443	1.0939	3.2706	.5602	.3312	.3723
------	--------	--------	--------	--------	--------	--------	-------	-------	-------

23.000 1.4803

24.000	.9614	
--------	-------	--

27.500	.5017
31.500	.8712

33,100	1.6962
--------	--------

35.000 .925!

40.000	1.1524	2.0783
--------	--------	--------

45.000	2.2711
--------	--------

50,000 1.1978

51.600

57.000	1.0963
--------	--------

60,900	1.0857
--------	--------

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. FUS.

(AQ3BAC)

MACH ( 3 ) = 4.600      ALPHA ( 2 ) = .000

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

[illegible]

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH-4) MATED/ALONE RATIO.ORB. UPR WING

(AQ3UAC) ( 19 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 5.000 BETA = .000

MACH ( 1 ) = 2.950 ALPHA ( 1 ) = .000 PINF = 1.1042 Q(PSI) = 6.7266 RN/L = 5.0200 CPSTG = 1.7529

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.8370		
.200	.9693	.8958	.9173
.600	1.0213	1.0366	
.800		.9448	
.900		1.0665	1.0053
.950		1.1572	

MACH ( 1 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = 1.1042 Q(PSI) = 6.7266 RN/L = 5.0200 CPSTG = 1.7529

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.9940		
.200	1.0037	.9498	.9310
.600	.8462	.9620	
.800		1.0832	
.900		1.0371	.8715
.950		1.1045	

MACH ( 2 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .54730 Q(PSI) = 5.2445 RN/L = 4.9900 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.8816		
.200	.9027	.8203	.8142
.600	.8600	.8355	
.800		.8990	
.900		.9898	.8762
.950		.9632	

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. UPR WING

(AQ3UAC)

MACH ( 2 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .54730 Q(PSI) = 5.2445 RN/L = 4.9900 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.7980		
.200	.8658	.7940	.8207
.600	.8972	.8879	
.800		.8801	
.900		.9814	.8341
.950		1.0453	

MACH ( 3 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .27620 Q(PSI) = 4.0904 RN/L = 5.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.9188		
.200	.9367	.7950	.7787
.600	1.1441	1.0069	
.800		1.0704	
.900		1.0253	.9146
.950		1.1474	

MACH ( 3 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .27620 Q(PSI) = 4.0904 RN/L = 5.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.7428		
.200	.8588	.7172	.7637
.600	.9715	.8487	
.800		1.0350	
.900		.9844	.8984
.950		1.0576	

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UPWT 1059 (IH-4) MATED/ALCNE RATIO, ORB. LWR WING

(AQ3LAC) ( 19 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 5.000 BETA = .000

MACH ( 1 ) = 2.950 ALPHA ( 1 ) = .000 PINF = 1.1042 Q(PSI) = 6.7266 RN/L = 5.0200 CPSTG = 1.7529

## SECTION ( 1 ) ORB. LOWER WING

## DEPENDENT VARIABLE PI/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000						.9677		.9343		.8782
.001	.9549	.8347		.7707	1.1581	.9654		.9880		
.002					1.1703			1.0010		
.003					.8323			.9106		
.004					1.1539			1.0121		
.005					1.1683			.9958		
.025			.8534	1.1632		1.0174				
.045			.8416							
.100					1.0839		1.0150	.9848		
.153	.8509									
.177				1.2839						
.200			1.6146							
.299	.8250									
.302			1.4133				.9992			
.428					1.2134					
.444	.7778									
.487				1.9450						
.559			1.9902							
.600					1.9335					
.700					2.5333					
.736	2.4812									
.800					2.8298					
.850					2.5618					
.900			1.2514		2.1564	2.5039		.9433		

MACH ( 1 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = 1.1042 Q(PSI) = 6.7266 RN/L = 5.0200 CPSTG = 1.7529

## SECTION ( 1 ) ORB. LOWER WING

## DEPENDENT VARIABLE PI/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000						.9397		.9721		.9321
.001	.5913	.5967		.9154		.8971	.9594	.9464		
.002						.8998		.9449		
.003						.9625		.9716		
.004						.9300		.9755		
.005						.9030		.9398		

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JPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. LWR WING

(AQ3LAC)

MACH (1) = 2.950 ALPHA (2) = 5.000

SECTION (1) ORB. LOWER WING				DEPENDENT VARIABLE PI/PU						
2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.025				.9615	.9032		.9616			
.045				.9954						
.100						.8838		.9741	.9862	
.153	.5695									
.177					.8939					
.200				.9502						
.299	.5652									
.302				1.0063			.8954			
.428						.8980				
.444	1.1268									
.487					1.6101					
.559				1.7979						
.600						1.7659				
.700						2.4914				
.736	2.1231									
.800						2.4331				
.850						2.1345				
.900				.8129		1.7976	2.4121		1.0402	

MACH (2) = 3.700 ALPHA (1) = -5.000 PINF = .54730 Q(PSI) = 5.2445 RN/L = 4.9900 CPSTG = 1.7839

SECTION (1) ORB. LOWER WING				DEPENDENT VARIABLE PI/PU						
2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						.9207		.8979		1.0099
.001		4.2535	3.4932		1.0986	1.0775	.9193	1.0303		
.002						1.1697		1.0769		
.003						.8614		.8718		
.004						1.0148		.9924		
.005						1.1068		1.0407		
.025				3.0746	1.2537		1.0125			
.045				3.1517						
.100						1.1651		1.0043	.9968	
.153	2.9420									
.177					1.9494					
.200				2.9422						
.299	2.7463									
.302				4.0856			1.4091			
.428						2.5411				
.444	2.3031									
.487					6.8714					
.559				5.8767						
.600						5.2476				

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UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. LWR WING

(AQ3LAC)

MACH ( 2 ) = 3.700 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PI/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.700							6.2830			
.736	5.5286									
.800							7.9803			
.850							7.8920			
.900							6.6790	4.8992	1.5137	
				1.3914						

MACH ( 2 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .54730 Q(PS1) = 5.2445 RN/L = 4.9900 CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PI/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000							.7825	.8606		.7954
.001		1.2014	.9379		.7234		.7243	.8375	.8831	
.002							.7150		.8813	
.003							.7881		.8485	
.004							.7567		.9120	
.005							.7318		.8610	
.025				.8539	.6908		.8151			
.045				.8671						
.100							.7251	.8808	.8925	
.153	1.0964									
.177					.7906					
.200				.9473						
.299	1.0811									
.302				1.0785			.9189			
.428						1.4004				
.444	.9325									
.487					2.1485					
.559				2.2090						
.600						2.1268				
.700						2.5939				
.736	2.7313									
.800						3.3303				
.850						3.4463				
.900				1.0224		3.2075	2.7143		1.0417	

UPWT 1059 (IH-4) MATED/ALONE RATIO,ORB. LWR WING

(AQ3LAC)

MACH (3) = 4.600 ALPHA (1) = -5.000 PINF = .27620 Q(PS1) = 4.0904 RN/L = 5.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PI/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				.9201		.8547		.9926
.001	4.5425	4.3905	1.0206	1.1156	.9210	1.0399		
.002				1.1616		1.0779		
.003				.8063		.7994		
.004				1.0062		1.0428		
.005				1.1609		1.0585		
.025		3.0690	1.2376		1.0329			
.045		3.2605						
.100				1.0915		1.0495	1.0029	
.153	3.3620							
.177			1.9145					
.200		2.4696						
.299	3.0448							
.302		3.1467			1.2356			
.428				2.1854				
.444	3.1337							
.487			7.7990					
.559		8.3019						
.600				5.0320				
.700				5.9019				
.736	9.6043							
.800				8.6914				
.850				9.4361				
.900		2.5228		8.6324	5.3854		1.6012	

MACH ( 3 ) = 4.600    ALPHA ( 2 ) = .000    PINF = .27620    Q(PSI) = 4.0904    RN/L = 5.0000    CPSTG = 1.8033

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PI/PU

2Y/8W	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000				.6906		.7957		.7261
.001	1.2875	.9547		.6428	.6427	.7259	.7558	
.002					.6346		.7584	
.003					.6951		.7969	
.004					.6931		.6852	
.005					.6265		.7536	
.025			.7220	.6112		.7030		
.045			.7224					
.100					.6542		.7096	.7956
.153	1.2055							
.177				.7843				
.200			1.0617					
.299	1.0637							



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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. LWR WING

(AQ3LAC)

MACH ( 3 ) = 4.600 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE P1/PU

2Y/BW .2500 .3011 .3480 .4000 .5000 .6000 .7500 .8500 .9500 .9980

X/CW

.302		1.1587		.8373
.428			1.4747	
.444	1.0480			
.487		2.0569		
.559		2.6906		
.600			1.9878	
.700			2.5048	
.736	3.4082			
.800			3.5000	
.850			4.2300	
.900		1.8328	4.4462	2.9098 .9548

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UPWT 1059 (IH-4) MATED/ALONE RATIO,ORB. VRT TAIL

(AQ3VAC) ( 19 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 5.000 BETA = .000

MACH ( 1 ) = 2.950 ALPHA ( 1 ) = .000 PINF = 1.1042 Q(PSI) = 6.7266 RN/L = 5.0200 CPSTG = 1.7529

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE P1/PU

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.0453	1.0491	1.0808	1.0435
.300	1.0047	1.0098	1.1368	
.500		1.0350		
.700		.9864		
.900	1.0449	.9745	1.0453	

MACH ( 1 ) = 2.950 ALPHA ( 2 ) = 5.000 PINF = 1.1042 Q(PSI) = 6.7266 RN/L = 5.0200 CPSTG = 1.7529

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE P1/PU

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	.9632	.9861	1.0167	1.0169
.300	.9792	.7778	.8873	
.500		.9171		
.700		.9708		
.900	.9425	.9617	.8933	

MACH ( 2 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .54730 Q(PSI) = 5.2445 RN/L = 4.9900 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE P1/PU

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.2565	.8549	.9501	.9490
.300	1.2095	1.1299	1.0038	
.500		1.3416		
.700		1.2532		
.900	1.0319	1.2530	1.2978	

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. VRT TAIL

(AQ3VAC)

MACH ( 2 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .54730 Q(PS1) = 5.2445 RN/L = 4.9900 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.1219	.9997	.9935	.9254
.300	1.3667	1.1923	1.0652	
.500		1.1292		
.700		1.0688		
.900	1.1344	1.0569	1.2867	

MACH ( 3 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .27620 Q(PS1) = 4.0904 RN/L = 5.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.2507	.8119	.9349	.9461
.300	1.2214	1.0958	.9951	
.500		1.2347		
.700		1.4923		
.900	1.0154	1.3734	1.2022	

MACH ( 3 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .27620 Q(PS1) = 4.0904 RN/L = 5.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.1623	1.2015	.8803	.9127
.300	1.3142	1.1443	1.0473	
.500		1.1392		
.700		1.0262		
.900	1.1581	1.0423	1.1489	



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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH-4) MATED/ALONE RATIO,EXT. TANK

(AQ3TAC)

MACH (1) = 3.700 ALPHA (1) = -5.000

SECTION (1) EXTERNAL TANK DEPENDENT VARIABLE PI/PU

X/LT .9250 .9350 .9370 .9750

THETA  
151.000 2.0596  
180.000 1.5520 1.6914  
210.000 2.1166

MACH (1) = 3.700 ALPHA (2) = .000 PINF = .54730 Q(PSI) = 5.2445 RN/L = 4.9900 CPSTG = 1.7839

SECTION (1) EXTERNAL TANK DEPENDENT VARIABLE PI/PU

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA  
.000 .9913 .9872 .9792 1.5911  
45.000 1.4211  
67.500 1.0567  
90.000 1.0051  
112.500 1.0298 1.0682 1.2610 4.2258 13.1607 1.5744 1.0051  
135.000 1.0288 1.3245 2.1357 1.7398 1.1725  
157.500 1.2904 1.9205 1.2453 1.1725  
167.000 2.2702  
180.000 .9929 .9959 1.0280 1.0256 .9948 1.0120 1.0032 1.0805 1.0562 1.2192 2.4341 2.0678  
197.000 .9949 .9871 1.0761  
210.000 .9796  
220.000 2.0027  
225.000 1.5839  
232.000 2.5866

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA  
.000 1.2662 .9711  
45.000 .9178 1.0992 1.5185  
67.500 .8703 1.1257 1.1206 1.0356 .9714 1.9137  
90.000 .5835 .4847 .7216 1.2162 .9846 .9489 .9224 .8582 1.6677  
112.500 .6786 .6578 .7495 1.0346 1.4709 1.6588 1.5856 1.4876 1.4245 1.6544  
123.000 1.2651 1.4845 2.4084  
135.000 1.1351 2.3878 1.6394 1.1897 1.3730 1.1644 1.2569 1.2771 1.8680 2.5851  
157.500 2.1947 3.0601 2.0225 2.1251 1.7257 1.5481 1.3981 1.2963 1.0945 1.5784 1.7547 1.4756  
161.000 3.1270  
166.000 2.8471  
180.000 2.1375 3.0796 1.8788 3.1485 1.4018 1.9104 1.8043 1.7542 2.0672 1.6236 1.3005 1.0977 2.3466 1.5894  
197.000 1.9745 1.6630  
210.000 1.6578 1.3226 1.9351  
220.000 5.8959 1.5152  
232.000 1.0565 1.4409

## UPWT 1059 (IH-4) MATED/ALONE RATIO,EXT. TANK

(AQ3TAC)

MACH (1) = 3.700 ALPHA (2) = .000

SECTION (1)EXTERNAL TANK

DEPENDENT VARIABLE PI/PU

X/LT .9250 .9350 .9370 .9750

THETA

123.000	1.6992			
151.000		1.6423		
180.000			1.7456	1.6226
210.000			2.2309	

MACH (2) = 4.600 ALPHA (1) = -5.000 PINF = .27620 Q(PSI) = 4.0904 RN/L = 5.0000 CPSTG = 1.8033

SECTION (1)EXTERNAL TANK

DEPENDENT VARIABLE PI/PU

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA

.000															1.5520
45.000				1.0069	1.0007	1.0175									1.4573
67.500															.6807
90.000															1.2895
112.500															1.8110
135.000															1.0280
157.500															2.0724
167.000															2.0115
180.000	.9973	1.0027	1.0023	1.0269	1.0016	1.0078	.9894	1.0842		1.0492			1.0652	1.5691	2.2589
197.000					1.0054	.9813				1.1013					
210.000						.9752									2.0400
220.000															1.7668
225.000															
232.000												2.0997			4.8482

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA

.000															
45.000								1.2429				.9053			
67.500								.7256				.8841			1.5910
90.000								.6532	.6670	.7822	.9501	1.0487			1.9486
112.500		.9322						1.4811		1.8822	1.9911	1.8331	1.7412		2.1663
123.000		1.2264						1.8643	2.3555	2.8616	2.5989	2.5624	2.4114		2.8647
135.000													2.1875	2.6195	4.1765
157.500	2.0896	4.3959	2.2861	2.0809		2.0317		1.6110	1.6379	1.6909	1.9637	1.8761	1.8590		4.3180
161.000	4.0194					2.1897		1.9957	1.6342	1.8553	1.4969	1.6908	2.5927		1.9646
166.000															
180.000	3.1509	2.6319	2.1569	2.8427	1.6990	1.8416	2.1152	1.6831	1.5865	2.0512					2.1512
197.000				1.4798						2.0338	1.6778	1.5054	3.0355		1.9171
210.000								1.9100		1.9713					
220.000												1.6570			
232.000				8.7281						2.0202					
								1.9547				2.2103			

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

PAGE 897

UPWT 1059 (IH-4) MATED/ALONE RATIO,EXT. TANK

(AQ3TAC)

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PI/PU

X/LT .9250 .9350 .9370 .9750

THETA  
 123.000 2.9498  
 151.000 1.9882  
 180.000 1.7825 2.2079  
 210.000 2.1826

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .27620 Q(P51) = 4.0904 RN/L = 5.0000 CPSTG = 1.8033

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PI/PU

X/LT .0000 .0050 .0100 .0400 .0800 .1500 .2000 .2500 .2750 .3000 .3250 .3350 .3500 .3750 .4000

THETA  
 .000 .9927 .9895 .9762 1.5487  
 45.000 1.0742  
 67.500 1.0100  
 90.000 .9951 1.1530 1.3636 3.3642 1.2766 1.9291 1.0100  
 112.500 1.3442 1.4729 1.4267 2.0213 1.3088  
 135.000 1.4834 2.0799 1.0701  
 157.500 1.6462 1.0550 1.0444  
 167.000 2.1119  
 180.000 .9874 .9844 1.0058 1.0407 1.0004 1.0152 1.0006 1.4726 1.4887 1.9637 2.1428 2.0690  
 197.000 .9967 .9908 1.4878  
 210.000 .9741 2.2817  
 220.000 1.7650  
 225.000 1.8211  
 232.000 4.1995

X/LT .4250 .4500 .4750 .5000 .5250 .5500 .5750 .6000 .6500 .7000 .7500 .8000 .8500 .8750 .9000

THETA  
 .000 1.0063 .9539  
 45.000 .9315 1.1393 1.3940  
 67.500 .8222 1.1005 1.1325 1.0029 1.0321 2.1471  
 90.000 .7177 .5258 .6993 1.2118 1.0941 1.1633 1.1184 1.0145 2.0698  
 112.500 .7222 .7104 .7241 1.1941 1.3218 1.7233 1.7277 1.6893 1.6382 2.5579  
 123.000 1.4107 1.6286 3.0908  
 135.000 1.8031 3.3470 1.9835 1.2645 1.3844 1.2957 1.3055 1.3860 1.6571 3.3502  
 157.500 2.4846 3.0727 2.5068 2.8075 2.0892 1.8712 1.9248 1.7740 1.4835 1.4711 2.1742 1.9709  
 161.000 3.1111  
 166.000 3.5276  
 180.000 3.0630 2.4293 2.5850 4.1729 2.1360 1.7770 2.2865 2.1154 1.9971 2.3019 1.8734 1.5421 2.8525 2.5084  
 197.000 2.9172 2.4214  
 210.000 1.9831 1.8639 1.7255  
 220.000 10.0802  
 232.000 1.2450 1.7624

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TABULATED SOURCE DATA - IH4

PAGE 898

UPWT 1059 (IH-4) MATED/ALONE RATIO,EXT. TANK

(AQ3TAC)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000

SECTION ( 1 ) EXTERNAL TANK

DEPENDENT VARIABLE PI/PU

X/LT .9250 .9350 .9370 .9750

THETA

123.000 2.6963

151.000 1.8364

180.000 2.3145 4.5477

210.000 2.2552



DATE 22 APR 76

TABULATED SOURCE DATA - IH4

PAGE 899

UPWT 1059 (IH-4) MATED/ALONE RATIO, S. R. B.

(AQ3SAC) ( 19 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 5.000 BETA = .000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = .000 PINF = .54730 Q(PSI) = 5.2445 RN/L = 4.9900 CPSTG = 1.7839

SECTION ( 1 ) SOLID RCKT. BSTR				DEPENDENT VARIABLE PI/PU												
X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000	
PSI																
90.000	1.2104		.9844	.9409		.9070							1.0277			
180.000			1.0306		.8573						.9560		.7972			
225.000										2.1567			1.1390		1.5587	
247.500												.5463	1.2871	1.4350	1.4157	
260.000								10.8697								
270.000		1.8014	1.4314	.9362	.8392	1.0963	3.8876		.8433	1.3749	.8468	.5288	1.0895	.9192	.8159	
315.000												.5886				
X/LSRB	.7000	.7800	.8000	.9000	.9100	.9200	.9250	.9300	.9400	.9500	.9600	.9900				
PSI																
90.000	.9492	1.1178	1.2894					.8541				.8407				
180.000	.9510	1.9677	6.8326	1.5201				1.0029			.7839	.6424				
210.000					.6689	.5786		.4852								
215.000							.2817		.2923	.6065	.1897					
225.000		1.6678	5.0486	.4450				.5202			.2880					
240.000								.2297			.2566	.2455				
247.500	1.1079															
270.000	.8161	2.5556	1.2310	.3673				.2571				.9950				
315.000	.8728															

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = .000 PINF = .27620 Q(PSI) = 4.0904 RN/L = 5.0000 CPSTG = 1.8033

SECTION ( 1 ) SOLID RCKT. BSTR				DEPENDENT VARIABLE PI/PU												
X/LSRB	.0000	.0040	.0250	.0500	.0750	.1000	.1100	.1150	.1300	.1500	.2000	.3000	.4000	.5000	.6000	
PSI																
90.000	1.3690		1.0602	.9871		.9397							1.1362			
180.000			1.1154		.8798						.9709		.7620			
225.000										1.5134			.9729		1.8877	
247.500												.5753	1.4907	1.5068	1.7483	
260.000							6.7244									
270.000		2.1654	1.6728	.9894	.9709	.9966	2.5614		.8951	1.9022	1.0906	.5176	1.0595	1.0047	.9978	
315.000												.6259				

TABULATED SOURCE DATA - IH4

UPWT 1059 (IH-4) MATED/ALONE RATIO, S. R. B.

MACH ( 2 ) = 4.600      ALPHA ( 1 ) = .000

DEPENDENT VARIABLE PI/PU

[illegible]

TABULATED SOURCE DATA - IH4

UPWT 1059 (1H-4) MATED/ALONE RATIO,ORB. FUS.

(AQ3BAD) ( 19 APR 76 )

### REFERENCE DATA

### PARAMETRIC DATA

```

SREF  = 2690.0000 SQ.FT.   XMRP  = .0000 INCHES
LREF  = 1290.3000 INCHES  YMRP  = .0000 INCHES
BREF  = 1290.3000 INCHES  ZMRP  = .0000 INCHES
SCALE = .0100

```

RN/L = 3.000 BETA = -5.000

MACH (1) = 3.700    ALPHA (1) = -5.000    PINF = .32910    Q(PSI) = 3.1537    RN/L = 3.0000    CPSTG = 1.7839

## SECTION ( 1 ) ORBITER FUSELAGE

## DEPENDENT VARIABLE PI/PU

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	1.2445	1.2576	1.3128	2.1406		2.7687	2.8153	15.8543		1.4620					
10.000								7.4430							
20.000								3.0086							
24.500								3.4028							
39.000								1.6011							
163.000														1.2516	
174.000															
180.000	1.2445				1.3083			1.3385	1.3443	1.3423	1.2713	1.2549	1.2441		1.2299
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	3.5801	2.6353	2.0406	1.8141	2.1724		5.7370				.8472		.4620	.4810	
23.000		3.1952													
24.000	4.1903														
31.500	3.5917														
33.100		3.7875													
35.000	3.4468														
40.000	3.3113	5.0646													
45.000		5.1242													
50.000	1.6330														
51.600															
57.000		2.0945													
60.900		1.8110													
65.000		1.6778													
68.000															
69.000		1.7863													
79.300					1.3767										
95.500					1.4048		1.3445								
95.700		1.3889													
96.300	1.3367														
103.000					1.4255										
105.000															1.2003
112.600					1.4715										
117.500															
120.800									1.3529						
127.900						1.4820									
129.500								1.2919							
											1.3023		1.2121		

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. FUS.

(AQ3BAD)

MACH (1) = 3.700 ALPHA (1) = -5.000

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
130.000									1.2911	1.2910		1.2511			
135.000		1.1420				1.7179									
139.600									1.2612						
144.000												1.2208			
155.000	1.2492														
180.000	1.0904	1.4046				1.4854									
X/LB	1.0250	1.0500													
PHI															
.000	.4845	.6611													

MACH (1) = 3.700 ALPHA (2) = .000 PINF = .32910 Q(PSI) = 3.1537 RN/L = 3.0000 CPSTG = 1.7839

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	.8742	.8177	.9751	1.4527		1.8840	2.0197	9.7830		.8358					
10.000								4.4266							
20.000								1.9078							
24.500								2.0039							
39.000								1.1198							
163.000														.9686	
174.000															
180.000	.8742				.9244			.9344	.9472	.9405	.9497	.9574	.9649		.9687
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	1.8246	1.3746	1.1351	.8858	1.0351		2.9467				.4152		.2628	.2915	
23.000		1.4838													
24.000	2.2929														
31.500	1.8895														
33.100		1.5943													
35.000	2.1033														
40.000	2.2578	1.7390													
45.000		1.8291													
50.000	1.5588														
51.600															
57.000		1.3928											.8453		
60.900		1.4204													
65.000		1.4259													
68.000														.8042	

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TABULATED SOURCE DATA - IH4

PAGE 903

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. FUS.

(AQ3BAD)

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
69.000		1.5135													
79.300					.9276										
95.500					.9490		.8450								
95.700		1.5300													
96.300	1.0273														
103.000					.9524										
105.000															1.0665
112.600					.9488										
117.500												.8684		.8726	
120.800									.8981						
127.900						.7664									
129.500								.8756							
130.000									.9060	.9122		1.0231			
135.000		1.0554			1.0027										
139.600									.8740						
144.000												.9752			
155.000	.9776														
180.000	.9539	1.0598			1.0764										

X/LB 1.0250 1.0500

PHI  
.000 .2778 .3560

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .16570 Q(PSI) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	1.1182	1.1834	1.1745	1.9394		2.6666	2.6026	16.1960		1.8995					
10.000								6.9062							
20.000								3.2707							
24.500								2.9777							
39.000								1.1989							
163.000															1.1277
174.000															
180.000	1.1182				1.0372			1.0312	1.0440	1.0446	1.0981	1.1205	1.1209		1.0540

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	3.7232	2.7655	2.6509	1.9026	2.0297		4.9898								
23.000		3.7364									1.0149		.6083	.6667	

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DATE 22 APR 76

TABULATED SOURCE DATA - 1H4

PAGE 904

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. FUS.

(AQ3BAD)

MACH ( 2 ) = 4.600      ALPHA ( 1 ) = -5.000

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE P1/PU

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------

PHI

24.000 - 3.4736

31.500	2.6129
--------	--------

33.100	4.0943
--------	--------

35.000	3.1600
--------	--------

40.000	3.3141	5.7103
--------	--------	--------

45.000 5.5377

50.000 1.4372

51.600

57.000	1.6166
--------	--------

60.900	1.3831
--------	--------

65.000	1.4568
--------	--------

68,000

69.000	1.3390
--------	--------

79.300

95.500 1.2325

95.700 1.1190

96.300 1.1992

103.000	1.2567
---------	--------

105,000

112.600 1.1803

117.500

120.800 1.2147

127.900 .4832

129.500 1.1132

130.000	1.1830	1.3295
---------	--------	--------

135.000	1.0055	.8117
---------	--------	-------

139.600 1.0896

144.000 .9948

155.000 1.1311

180.000	.9962	1.2591	1.0442
---------	-------	--------	--------

X/LB	1.0250	1.0500
------	--------	--------

PHI

.000	.6705	.7489
------	-------	-------

TABULATED SOURCE DATA - 1H4

(AQ3BAD)

UPWT 1059 (IH-4) MATED/ALONE RATIO.ORB. FUS.

MACH ( 2 ) = 4.600    ALPHA ( 2 ) = .000    PINF = .16570    Q(PSI) = 2.4540    RN/L = 3.0000    CPSTG = 1.8033

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

PHI

[illegible]

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	9630	.9750	1.0000	1.0145
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	------	-------	--------	--------

PHI

.000	1.4566	1.5608	1.2514	1.1163	1.0933	3.4968		.7488		.5236	.5691
23.000		1.7949									
24.000	1.0542										
31.500	1.2819										
33.100		1.8846									
35.000	1.4432										
40.000	1.6169	1.9725									
45.000		1.7880									
50.000	1.1415										
51.600										.9658	
57.000		1.5020									
60.900		1.5521									
65.000		1.4202									
68.000										.8045	
69.000		1.3619									
79.300				.9749							
95.500				1.0897		.8629					
95.700		1.2098									
96.300	1.0119										
103.000				1.0749							
105.000											.8903
112.600				1.0873							
117.500									.8062		.7845
120.800							.9284				
127.900						.8950					
129.500							.8771				
130.000							.8602	.8454		.9478	
135.000		1.0194		1.0714							
139.000							.7473				
144.000									.8658		
155.000	.9985										
180.000	.9640	1.0976		.8708							

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TABULATED SOURCE DATA - IH4

PAGE 906

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. FUS.

(AQ3BAD)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE P1/PU

X/LB 1.0250 1.0500

PH1  
.000 .5828 .6239



DATE 22 APR 76

TABULATED SOURCE DATA - IH4

PAGE 907

UPWT 1059 (IH-4) MATED/ALONE RATIO,ORB. UPR WING

(AQ3UAD) ( 19 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 3.000 BETA = -5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32910 Q(PSI) = 3.1537 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) ORB. UPPER WING

## DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

## X/CW

.050	1.1176		
.200	1.1855	1.0258	1.0664
.600	1.6760	1.1859	
.800		1.2236	
.900		.9831	1.2410
.950		1.4026	

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32910 Q(PSI) = 3.1537 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) ORB. UPPER WING

## DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

## X/CW

.050	.7170		
.200	.9022	.8108	.8098
.600	.9767	.9635	
.800		.8586	
.900		.9760	.9573
.950		1.1222	

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .16570 Q(PSI) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

## SECTION ( 1 ) ORB. UPPER WING

## DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

## X/CW

.050	.8518		
.200	.8434	.8291	.7366
.600	1.0453	.9808	
.800		.9720	
.900		.9738	1.1371
.950		.9318	

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TABULATED SOURCE DATA - IH4

PAGE 908

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. UPR WING

(AQ3UAD)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .16570 Q(PSI) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE P1/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.7160		
.200	.8141	.6950	.7866
.600	.6851	.7331	
.800		.7889	
.900		.9529	.8677
.950		.8984	

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

PAGE 309

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. LWR WING

(AQ3LAD) ( 19 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = -5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32910 Q(PSI) = 3.1537 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) ORB. LOWER WING

## DEPENDENT VARIABLE PI/PU

2Y/BW .2500 .3011 .3480 .4000 .5000 .6000 .7500 .8500 .9500 .9980

## X/CW

.000					1.0183		1.0248		1.1098
.001	3.4045	2.7599		1.1229	1.1374	1.0409	1.0503		
.002					1.1415		1.1723		
.003					.9791		1.0382		
.004					1.1092		1.0373		
.005					1.1732		1.0974		
.025			1.9854	1.1819		1.0951			
.045			2.2174						
.100					1.4127		1.1178	1.1374	
.153	3.1688								
.177				2.0646					
.200			3.6443						
.299	3.0732								
.302			4.8430			1.3837			
.428					2.0566				
.444	3.0124								
.487				6.6367					
.559		11.4789							
.600					4.8962				
.700					5.4256				
.736	16.9770								
.800					6.2098				
.850					6.9031				
.900			3.5183		6.7493	3.9834		1.7386	

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32910 Q(PSI) = 3.1537 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) ORB. LOWER WING

## DEPENDENT VARIABLE PI/PU

2Y/BW .2500 .3011 .3480 .4000 .5000 .6000 .7500 .8500 .9500 .9980

## X/CW

.000					.8981		.9252		.8633
.001	1.1503	.9349		.8340	.8959	.9261	.9896		
.002					.8971		1.0210		
.003					.8657		.9069		
.004					.9022		.9673		
.005					.8901		1.0020		

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

PAGE 916

UPWT 1025 (IH-4) MATED/ALONE RATIO, ORB. LWR WING

(A03LAD)

MACH (1) = 3.700 ALPHA (2) = .000

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PI/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.025				.8461	.8206		1.0055			
.045				.8473						
.100						.8933		1.0059	1.0549	
.153	1.0884									
.177					.8849					
.200				1.0495						
.299	1.0256									
.302				1.3512			1.0573			
.428						1.1659				
.444	1.0313									
.487					3.0715					
.559				3.6652						
.600						2.5029				
.700						2.6292				
.736	6.5012									
.800						2.8194				
.850						2.9398				
.900				1.7918		2.9192	2.2616		1.0775	

MACH (2) = 4.600 ALPHA (1) = -5.000 PINF = .16570 Q(PSI) = 2.4540 RN/L = .3.0000 CPSTG = 1.8033

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE PI/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						1.0150		1.3945		1.1783
.001		3.2676	2.9366		1.0600	1.2436	.9717	1.4824		
.002						1.2070		1.5561		
.003						.8794		1.2512		
.004						1.1478		1.4584		
.005						1.1767		1.4216		
.025				2.2112	1.2790		1.1878			
.045				2.2846						
.100						1.1024		1.2538	1.5769	
.153	3.1975									
.177					2.0061					
.200				5.2049						
.299	3.4799									
.302				5.1279			1.3793			
.428						2.5220				
.444	3.5132									
.487					5.8486					
.559				7.8505						
.600						4.4825				

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

PAGE 911

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. LWR WING

(A03LAD)

MACH (2) = 4.600 ALPHA (1) = -5.000

SECTION (1) ORB. LOWER WING DEPENDENT VARIABLE P1/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.700						4.3690				
.736	22.0163									
.800						4.5580				
.850						4.7083				
.900				4.1097		4.8752	3.8280		1.0902	

MACH (2) = 4.600 ALPHA (2) = .000 PINF = .16570 Q(PS1) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION (1) ORB. LOWER WING DEPENDENT VARIABLE P1/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						.8258		1.1841		.9096
.001		1.1906	.9590		.7287	.8014	1.1791	1.1866		
.002						.7540		1.1001		
.003						.7837		1.1805		
.004						.8530		1.0811		
.005						.7655		1.1398		
.025				.7374	.6998		1.0698			
.045				.7370						
.100						.8300		1.0177	1.1139	
.153	1.2793									
.177					1.0518					
.200				1.5753						
.299	1.1351									
.302				1.6877			1.1018			
.428						1.2079				
.444	1.4176									
.487					2.4040					
.559				2.6803						
.600						1.8837				
.700						2.3453				
.736	4.8276									
.800						3.0206				
.850						3.4818				
.900				5.2312		3.7550	2.0115		1.1879	

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

PAGE 912

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. VRT TAIL

(AQ3VAD) ( 19 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = -5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32910 Q(P51) = 3.1537 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.0907	1.2530	1.2178	1.2379
.300	1.2936	1.7015	1.4177	
.500		1.3770		
.700		1.2536		
.900	1.3818	1.2649	1.5430	

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32910 Q(P51) = 3.1537 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.0516	1.0585	1.1166	.9391
.300	1.0441	1.1072	1.2402	
.500		1.0484		
.700		.9917		
.900	1.0377	.9754	1.0793	

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .16570 Q(P51) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.1882	.8368	.9525	.9494
.300	1.1591	1.1500	1.0407	
.500		1.2982		
.700		1.3041		
.900	1.0627	1.3238	1.4669	

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

PAGE 913

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. VRT TAIL

(A03VAD)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .16570 Q(PSI) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PI/PU

Z/BV	.2990	.5320	.7650	.9050
X/CV				
.000	1.1653	1.2852	.9272	.9205
.300	1.2521	1.2766	1.2212	
.500		1.1995		
.700		1.0814		
.900	1.2811	1.0935	1.2714	

ORIGINAL PAGE IS  
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DATE 22 APR 76

TABULATED SOURCE DATA - IH4

PAGE 914

UPWT 1059 (IH-4) MATED/ALONE RATIO.ORB. FUS.

(AQ3BAE) ( 19 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 3.000 BETA = 5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32925 Q(PSI) = 3.1551 RN/L = 3.0000 CPSTG = 1.7839

## SECTION ( 1 ) ORBITER FUSELAGE

## DEPENDENT VARIABLE PI/PU

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
PHI															
.000	1.2948	1.3282	1.3779	2.0693		2.6632	2.1187	12.1696		1.5906					
10.000								8.9671							
20.000								2.6035							
24.500								1.8199							
39.000								1.6017							
163.000														1.3118	
174.000															
180.000	1.2948				1.3375			1.3652	1.3714	1.3461	1.2731	1.2873	1.2509		1.2359
X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
PHI															
.000	3.8869	2.0444	2.6691	1.6566	1.7860		6.0833				1.1606		.7624	.6854	
23.000		1.6769													
24.000	2.7687														
31.500	2.4106														
33.100		1.8691													
35.000	2.4484														
40.000	2.3240	2.2145													
45.000		2.4589													
50.000	1.6418														
51.600															
57.000		1.9884											1.4699		
60.900		2.2156													
65.000		2.4170													
68.000															
69.000		2.3749											1.3652		
79.300					1.5421										
95.500					2.1195		1.6068								
95.700		1.7721													
96.300	1.4731														
103.000						1.8201									
105.000															1.6886
112.600						1.8560									
117.500															
120.800									1.5949				1.9750	1.9434	
127.900						1.5533									
129.500								1.4444							



TABULATED SOURCE DATA - 1H4

(AQ3BAE)

UPWT 1059 (IH-4) MATED/ALONE RATIO.ORB. FUS.

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE P1/PU

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------

PHI

130.000

135.000

139.600

144.000

155.000

180.000

X/LB	1.0250	1.0500
------	--------	--------

PHI

**.000**

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32925 Q(PSI) = 3.1551 RN/L = 3.0000 CPSTG = 1.7839

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE  $P_1/P_U$ 

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

PHI

.000

10.000

20.000

24.500

**39.000**

163.000

174.000

180.000

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------

PHI

.000

23.000

24.000

31.500

33.100

35.000

40.000  
45.00045.000  
60.00050.000  
51.600

57.000

60.900

65,000

68,000

UPWT 1059 (IH-4) MATED/ALONE RATIO,ORB. FUS.

(AQ3BAE)

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE P1/PU

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------

PHI

69.000 1.2632

79.300

95.500

95.700

96.300

103.000

105.000

112.600

117.500

120.800

127.900

129.500

130.000

135.000

139.600

144.000

155.000

180.000

X/LB	1.0250	1.0500
------	--------	--------

PHI

.000	.4042	.4684
------	-------	-------

MACH ( 2 ) = 4.600    ALPHA ( 1 ) = -5.000    PINF = .16570    Q(PSI) = 2.4540    RN/L = 3.0000    CPSTG = 1.8033

SECTION (1) ORBITER FUSELAGE

DEPENDENT VARIABLE PI/PU

X/LB	.0000	.0050	.0200	.0400	.0500	.0600	.0800	.1000	.1250	.1500	.1600	.1650	.1700	.1750	.1800
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

PHI

0.000	1.1810	1.2761	1.2890	1.8692
-------	--------	--------	--------	--------

10.000

20.000

24.500

39.000

163.000

174.000

180,000

X/LB	.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750	1.0000	1.0145
------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	--------	--------

PHI

0.000	3.0654	2.6331	2.5312	2.2576	2.2844	6.2067	1.4096	.7650	.7543
23.000		1.9058							

23.000

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

PAGE 917

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. FUS.

(AQ3BAE)

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) ORBITER FUSELAGE		DEPENDENT VARIABLE P1/PU												
X/LB		.2000	.3000	.4000	.5000	.6000	.7800	.8000	.8050	.8290	.8620	.9500	.9630	.9750 1.0000 1.0145
PHI														
24.000	2.8116													
31.500	2.3644													
33.100		1.9536												
35.000	2.4309													
40.000	2.3545	2.1256												
45.000		2.3340												
50.000	1.6426													
51.600														
57.000		1.7618												.9185
60.900		1.7476												
65.000		1.7532												
68.000														.9926
69.000	1.4939													
79.300						1.9088								
95.500						1.9243		1.3351						
95.700	1.5688													
96.300	1.4832													
103.000						1.5000								
105.000														1.3594
112.600						1.4273								
117.500														
120.800										1.4500				1.9278
127.900						1.2124								
129.500								1.3635						
130.000									1.4166	1.4479		1.9628		
135.000	1.4796					1.1224								
139.600									1.3076					
144.000												1.5300		
155.000	1.0979													
180.000	.9863	1.2450				1.1292								
X/LB	1.0250	1.0500												
PHI														
.000	.5693	.6327												

100%  
 QUALITY  
 CONTROL  
 INSPECTION  
 REQUIRED  
 BY  
 DRAWING  
 SPECIFICATIONS

UPWT 1059 (IH-4) MATED/ALONE RATIO.ORB. FUS.

(AQ3BAE)

MACH ( 2 ) = 4.600    ALPHA ( 2 ) = .000    PINF = .16570    Q(PSI) = 2.4540    RN/L = 3.0000    CPSTG = 1.8033

## SECTION (1) ORBITER FUSELAGE

## DEPENDENT VARIABLE PI/PU

[illegible]

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

PAGE 919

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. FUS.

(AQ3BAE)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000

SECTION ( 1 ) ORBITER FUSELAGE

DEPENDENT VARIABLE P:/PU

X/LB 1.0250 1.0500

PHI  
.000 .5813 .6504

UPWT 1059 (1H-4) MATED/ALONE RATIO, ORB. UPR WING

(AQ3UAE) ( 19 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.7000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0000

RN/L = 3.000 BETA = 5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32925 Q(PSI) = 3.1551 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	1.1075		
.200	1.0868	1.0578	1.0386
.600	1.1388	1.1302	
.800		1.1262	
.900		1.0652	1.0714
.950		1.3075	

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32925 Q(PSI) = 3.1551 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.8333		
.200	.8325	.8036	.8288
.600	.8826	.8009	
.800		1.0063	
.900		1.0789	.9616
.950		1.0949	

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .16570 Q(PSI) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE PI/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.8810		
.200	.8628	.7890	.9061
.600	1.1927	.9413	
.800		1.0238	
.900		1.0772	1.0481
.950		1.1363	

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

PAGE 921

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. UPR WING

(AQ3UAE)

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .16570 Q(PSI) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. UPPER WING

DEPENDENT VARIABLE P1/PU

2Y/BW .4000 .6000 .8000

X/CW

.050	.7777		
.200	.7359	.7298	.9462
.600	1.0649	.8859	
.800		1.0813	
.900		1.0553	.9113
.950		1.3309	

UPWT 1059 (IH-4) MATED/ALONE RATIO.ORB. LWR WING

(AQ3LAE) ( 19 APR 76 )

## REFERENCE DATA

## PARAMETRIC DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

RN/L = 3.000 BETA = 5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32925 Q(P51) = 3.1551 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PI/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000						1.4274		1.0456		1.0308
.001	2.7003	2.4634		1.4144	1.5498	1.2051		1.2215		
.002					1.5200			1.3407		
.003					1.2213			1.0345		
.004					1.5820			1.1095		
.005					1.5240			1.2857		
.025				3.2969	1.7610		1.3012			
.045				3.1582						
.100						1.4609		1.1577	.9637	
.153	2.5973									
.177					3.0023					
.200				2.8428						
.299	1.9222									
.302				3.7444			1.6316			
.428						5.2725				
.444	1.8743									
.487					4.7628					
.559				5.5766						
.600						4.3800				
.700						3.7629				
.736	5.4135									
.800						4.2182				
.850						4.1734				
.900				2.8344		3.7988	3.6221	2.2127		

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32925 Q(P51) = 3.1551 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PI/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000						.6744		.7503		.8517
.001	1.1074	.8105		.5947		.6748	.7358	.8111		
.002						.7851		.8959		
.003						.7004		.7773		
.004						.6777		.7302		
.005						.7424		.863E		



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TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. LWR WING

(AQ3LAE)

MACH (1) = 3.700 ALPHA (2) = .000

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE P1/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.025				.6359	.6021		.8671			
.045				.6211						
.100						.8607		.8375	.7704	
.153	1.1984									
.177					1.1889					
.200				1.1693						
.299	.8420									
.302				1.5172			.9011			
.428						1.6743				
.444	.6642									
.487					1.9251					
.559				2.2681						
.600						1.7773				
.700						1.7692				
.736	2.6416									
.800						1.8093				
.850						1.7332				
.900				.9639		1.6599	2.1864		1.1487	

MACH (2) = 4.600 ALPHA (1) = -5.000 PINF = .16570 Q(PSI) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION (1) ORB. LOWER WING

DEPENDENT VARIABLE P1/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
X/CW										
.000						.9641		.6705		1.0571
.001		2.2114	2.2264		.9077	1.1853	.8390	.8992		
.002						1.2262		1.1855		
.003						.8577		.6506		
.004						1.1062		.8329		
.005						1.1595		1.0318		
.025				3.1037	1.3737		1.0284			
.045				2.9814						
.100						1.3144		1.0835	.9640	
.153	2.1722									
.177					3.3063					
.200				2.5583						
.299	2.4132									
.302				4.4301			1.7705			
.428						4.8324				
.444	1.4517									
.487					5.9369					
.559				6.3538						
.600						4.9561				

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UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. LWR WING

(AQ3LAE)

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PI/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.700	
.736	6.1745
.800	
.850	
.900	

3.6970

3.0923

3.1162

2.2139

3.0761

2.5000

1.7826

MACH ( 2 ) = 4.600 ALPHA ( 2 ) = .000 PINF = .16570 Q(PSI) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. LOWER WING

DEPENDENT VARIABLE PI/PU

2Y/BW	.2500	.3011	.3480	.4000	.5000	.6000	.7500	.8500	.9500	.9980
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

X/CW

.000	
.001	1.2189
.002	1.0083
.003	
.004	
.005	
.025	
.045	
.100	
.153	1.1917
.177	
.200	
.299	1.0550
.302	
.428	
.444	.9325
.487	
.559	
.600	
.700	
.736	3.0491
.800	
.850	
.900	

.6766

.6572

.8003

.6919

.6717

.6713

.7332

.6569

.7160

.8622

.6612

.6470

.6809

.8611

.6540

.6555

.6516

.6515

.7065

.6517

.6437

.6612

.6470

.6809

.8611

.6540

.6555

.6516

.6515

.7065

.6517

.6437

.6612

.6470

.6809

.8611

.6540

.6555

.6516

.6515

.7065

.6517

.6437

DATE 22 APR 76

TABULATED SOURCE DATA - IH4

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UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. VRT TAIL

(AQ3VAE) ( 19 APR 76 )

## REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = .0000 INCHES  
 LREF = 1290.3000 INCHES YMRP = .0000 INCHES  
 BREF = 1290.3000 INCHES ZMRP = .0000 INCHES  
 SCALE = .0100

## PARAMETRIC DATA

RN/L = 3.000 BETA = 5.000

MACH ( 1 ) = 3.700 ALPHA ( 1 ) = -5.000 PINF = .32925 Q(PSI) = 3.1551 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.0918	1.3148	1.3172	1.2657
.300	1.3884	1.4759	1.4776	
.500		1.4739		
.700		1.4828		
.900	1.4052	1.4379	1.3955	

MACH ( 1 ) = 3.700 ALPHA ( 2 ) = .000 PINF = .32925 Q(PSI) = 3.1551 RN/L = 3.0000 CPSTG = 1.7839

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.0566	1.0282	.9792	.9891
.300	1.0872	.9977	1.0496	
.500		1.0062		
.700		1.0991		
.900	1.1008	1.0751	1.0591	

MACH ( 2 ) = 4.600 ALPHA ( 1 ) = -5.000 PINF = .16570 Q(PSI) = 2.4540 RN/L = 3.0000 CPSTG = 1.8033

SECTION ( 1 ) ORB. VERT. TAIL

DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.1387	.8502	.9521	.9562
.300	1.0630	1.0050	1.0278	
.500		1.0305		
.700		1.1027		
.900	.9123	1.1081	1.1418	

UPWT 1059 (IH-4) MATED/ALONE RATIO, ORB. VRT TAIL

(AQ3VAE)

MACH (2) = 4.600 ALPHA (2) = .000 PINF = .16570 Q(PSI) = 2.4540 RN/L = 3.0000 CFSTG = 1.8033

SECTION (1) ORB. VERT. TAIL

DEPENDENT VARIABLE PI/PU

Z/BV .2990 .5320 .7650 .9050

X/CV

.000	1.1479	1.2051	.9344	.9313
.300	1.1692	1.0761	1.2090	
.500		1.0449		
.700		1.2121		
.900	1.1284	1.1602	1.1477	